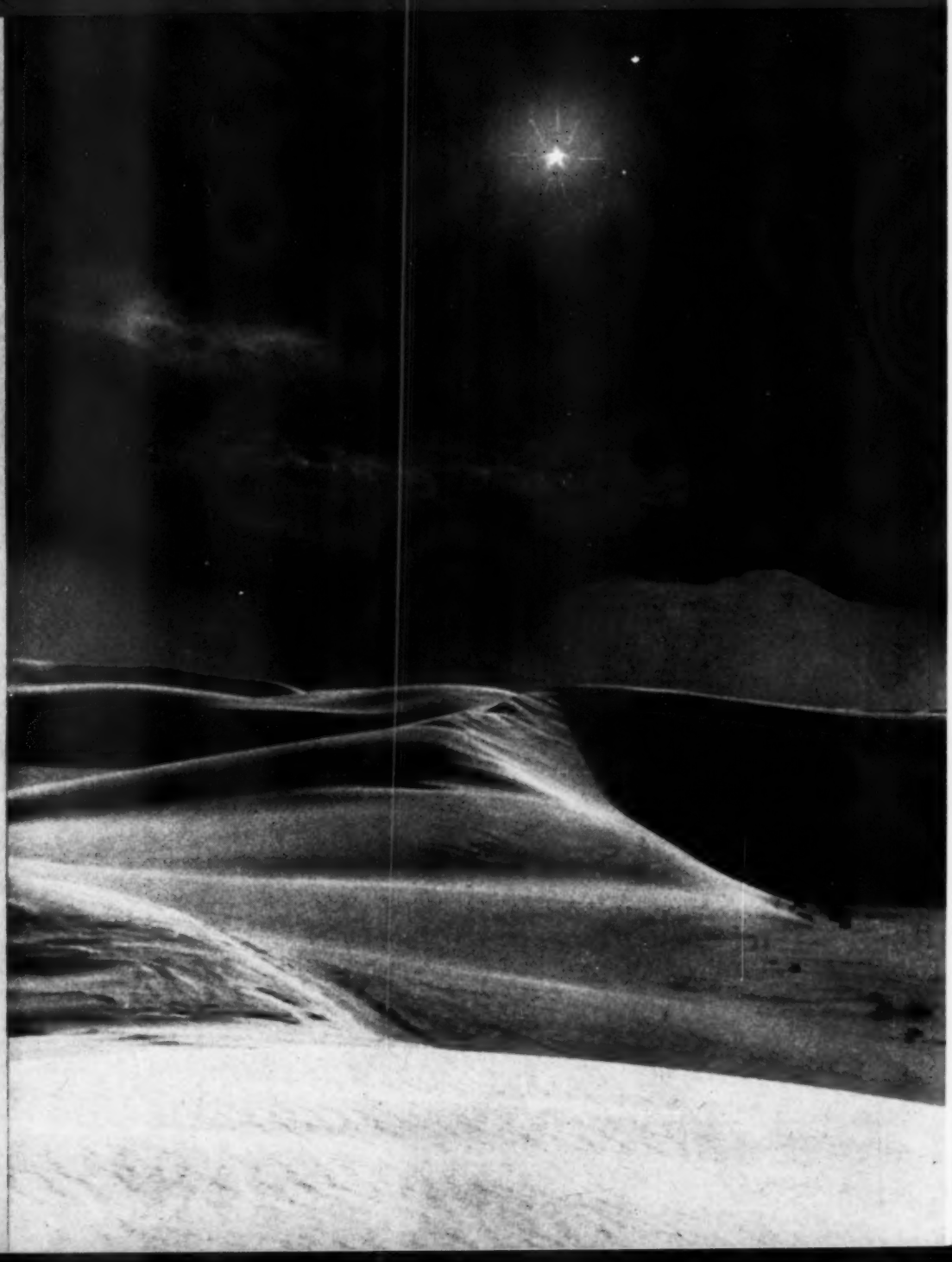
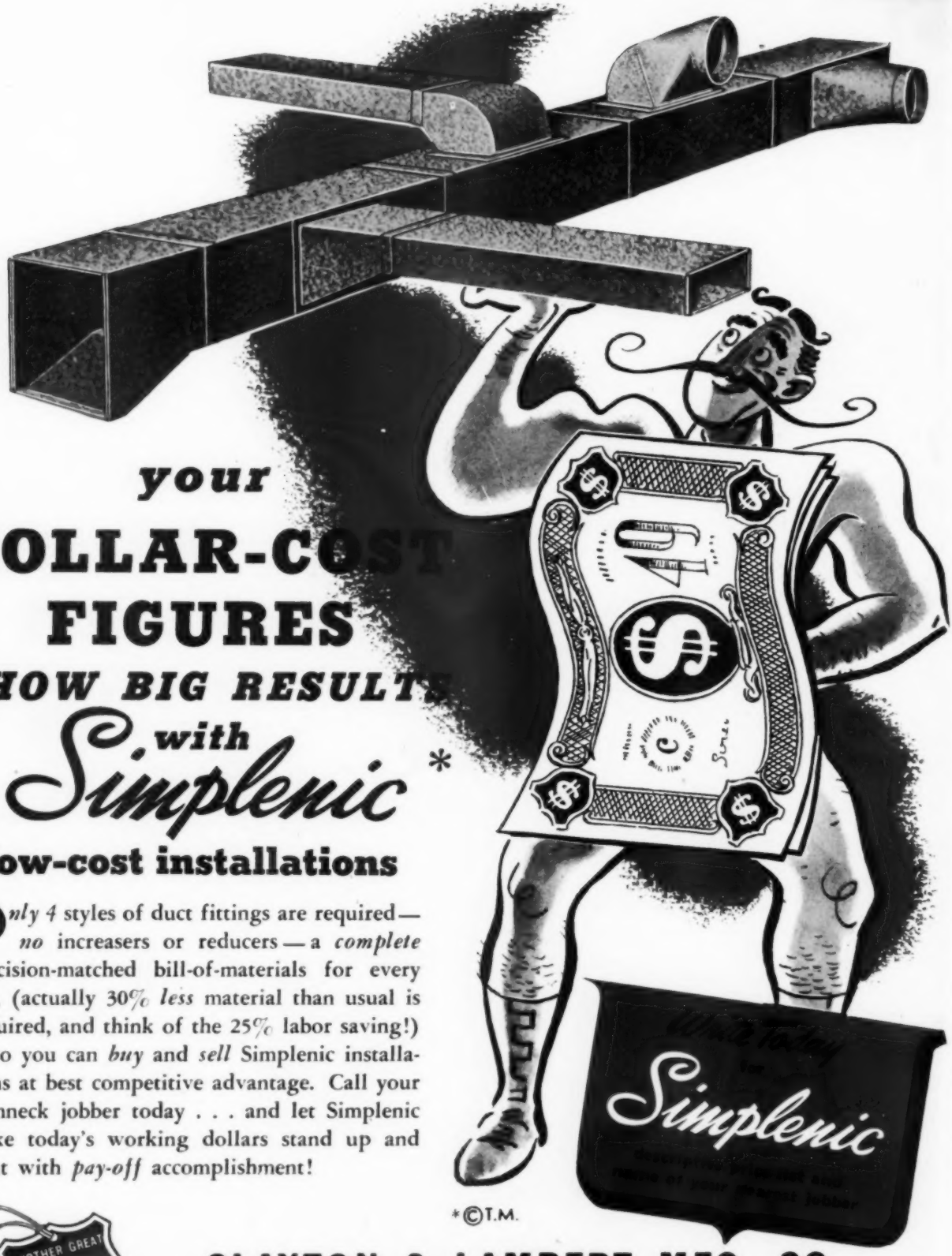
AMERICAN
ARTISAN
DECEMBER, 1948
68th Year
RESIDENTIAL AIR CONDITIONING • WARM AIR HEATING • SHEET METAL CONTRACTING



and, lo, the star
which they saw in the east,
went before them, till it
came and stood over where
the young child was.

When they saw the star,
they rejoiced with exceed-
ing great joy.



your DOLLAR-COST FIGURES SHOW BIG RESULTS with Simplenic*

low-cost installations

Only 4 styles of duct fittings are required—*no* increasers or reducers—a *complete* precision-matched bill-of-materials for every job, (actually 30% *less* material than usual is required, and think of the 25% labor saving!) —so you can *buy* and *sell* Simplenic installations at best competitive advantage. Call your Lamneck jobber today . . . and let Simplenic make today's working dollars stand up and strut with *pay-off* accomplishment!

*©T.M.

ANOTHER GREAT C&L PRODUCT

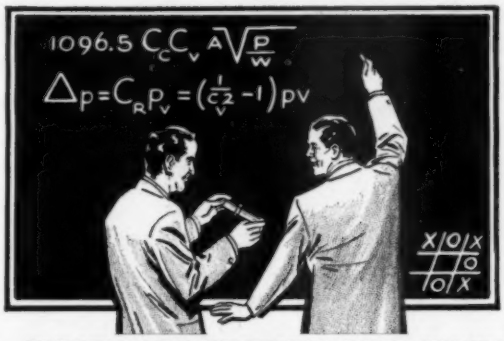
CLAYTON & LAMBERT MFG. CO.

1760 DIXIE HIGHWAY • LOUISVILLE 10, KY.

Lamneck **FURNACE PIPE AND FITTINGS**

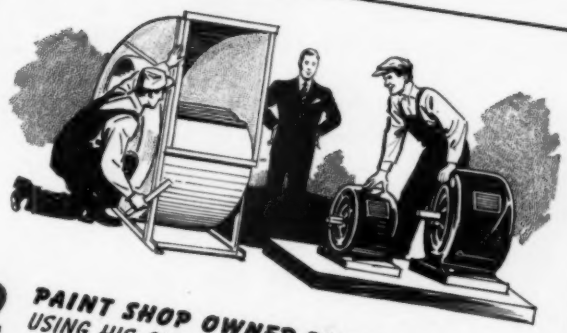
Blower-ology

A QUIZ TO KEEP YOU UP TO DATE

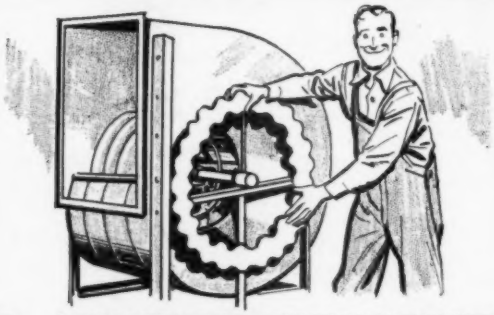


1 ***WHAT'S THE PROBLEM*** *THESE ENGINEERS ARE WORKING OUT?*

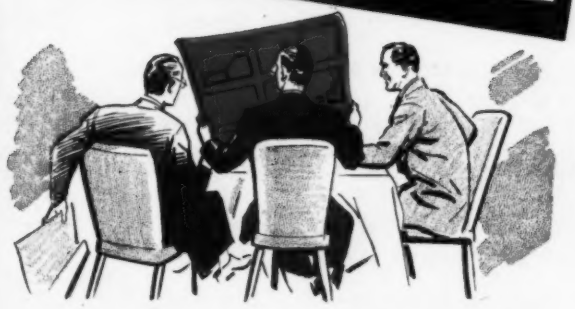
- ☐ *NEW ATOMIC ENERGY THEORY?*
- ☐ *INCOME TAX RETURN?*
- ☐ *AN ORIFICE PLATE PROBLEM?*



2 ***PAINT SHOP OWNER*** *DOUBLES HIS SPACE. USING HIS OLD BLOWER, HE REPLACES 3 H. P. MOTOR WITH 5 H. P. SIZE, TO HANDLE TWICE AS MUCH AIR IN THE SAME SYSTEM. WHY WON'T IT WORK?*



3 ***A MILLWRIGHT,*** *ARTISTICALLY INCLINED, BUILDS DECORATIVE COLLAR FOR INTAKE OPENING OF A BLOWER. SHOULD HE BE* ☐ *PROMOTED? OR* ☐ *FIRED?*



4 ***INDUSTRIAL GENIUS*** *SHOWS YOU HIS PLANS FOR BLOWING WALNUTS FROM FLOOR TO FLOOR. WHAT SHOULD YOU DO?* ☐ *CALL A PSYCHIATRIST?* ☐ *WRITE USAIRCO?*

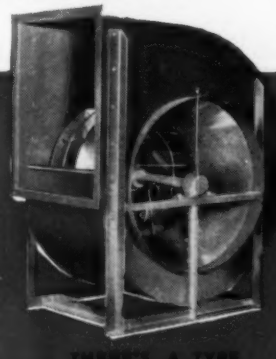
ANSWERS:

1 They're calculating air flow and resistance through orifice plates. Many such calculations are made by USAIRCO engineers in solving fan design problems.

2 If it's a good USAIRCO blower, it might handle doubled volume of air quite easily. But as RPM is doubled, horsepower requirement is *cubed*. He'll need 2 x 2 x 2 x 3, or 24 horsepower!

3 Give the man his walking papers. Intake design has tremendous effect on blower performance and USAIRCO has spent 20 years to develop the precisely correct shape of the "vena contracta." Don't let anyone tinker with it!

4 Write USAIRCO. More and more smart men *are* blowing merchandise around with USAIRCO's many special types of mill blowers! For quick, authoritative help on *any* air-handling job, please feel free to use our engineering consultation service.



THERE'S A TYPE AND SIZE OF USAIRCO BLOWER FOR EVERY NEED.

UNITED STATES AIR CONDITIONING CORPORATION
3360 Como Ave. S.E. Minneapolis, Minn.

U.S.AIRCO

AMERICAN ARTISAN

RESIDENTIAL AIR CONDITIONING • WARM AIR HEATING • SHEET METAL CONTRACTING

Member—Audit Bureau of Circulations
Member—Associated Business Papers

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Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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Founded 1880

DECEMBER, 1948

Volume 117, No. 12

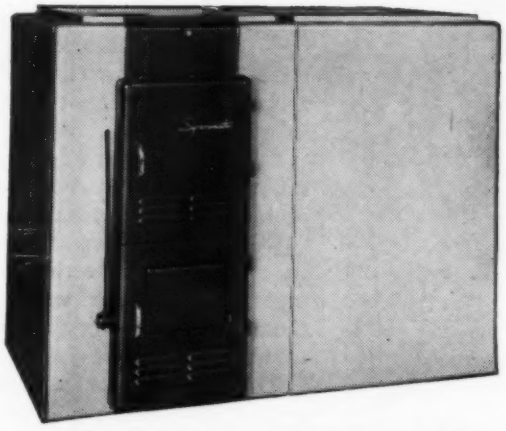
Frankly Speaking

SYNCROMATIC has Everything

Efficiency-Beauty-Safety-Economy... in WARM AIR HEATING-All at Low Cost!

CFB COAL FIRED UNIT

Only Syncromatic has this design . . . the result of intelligent and logical application of the "COUNTER-FLOW" principle and a completely and unparalleled Front construction . . . GROUND FIT DOORS COMBINED WITH VENTILATED STEEL CABINET SHIELD. The only coal unit made that can be converted to high efficiency oil firing.





Syncromatic COUNTER FLOW

PRINCIPLE MEANS PERFECTION IN HEATING EFFICIENCY

GFB GAS FIRED UNIT

A complete range from 75,000 to 240,000 BTU. All heat exchangers built of heavy 10 gauge corrosion resisting steel. "COUNTER-FLOW" principle as used in all Syncromatic Furnace Units.



OFB OIL FIRED UNIT

The Syncromatic Oil Fired Unit employs the "COUNTER-FLOW" principle in warm air heating . . . one of the most efficient methods of heat transfer known. Compact and completely welded heavy gauge heat exchanger . . . your best insurance for safety and long life. Just compare the gauge and construction of Syncromatic with any other oil-fired unit.

Syncromatic Corporation

WATERTOWN, WISCONSIN

the editor's notebook

Our August . . .

We would appreciate receiving a copy of the August issue of AMERICAN ARTISAN. The cover illustrates the stainless steel stairway at the American Iron and Steel Institute Exhibit in New York City, which we fabricated.

JOHN C. MANNING
Trio Industries, Inc.
New York, N. Y.

Since you fabricated this feature of the exhibit, we readily understand your interest in our cover picture.

We are pleased to send you a complimentary copy.—ED.

. . . and October Covers

I would appreciate if you will inform me where I can obtain the plans of *Mr. Blanding's Dream Home* which appears on the cover of your October issue.

HOWER BROS.
Merchantville, N. J.

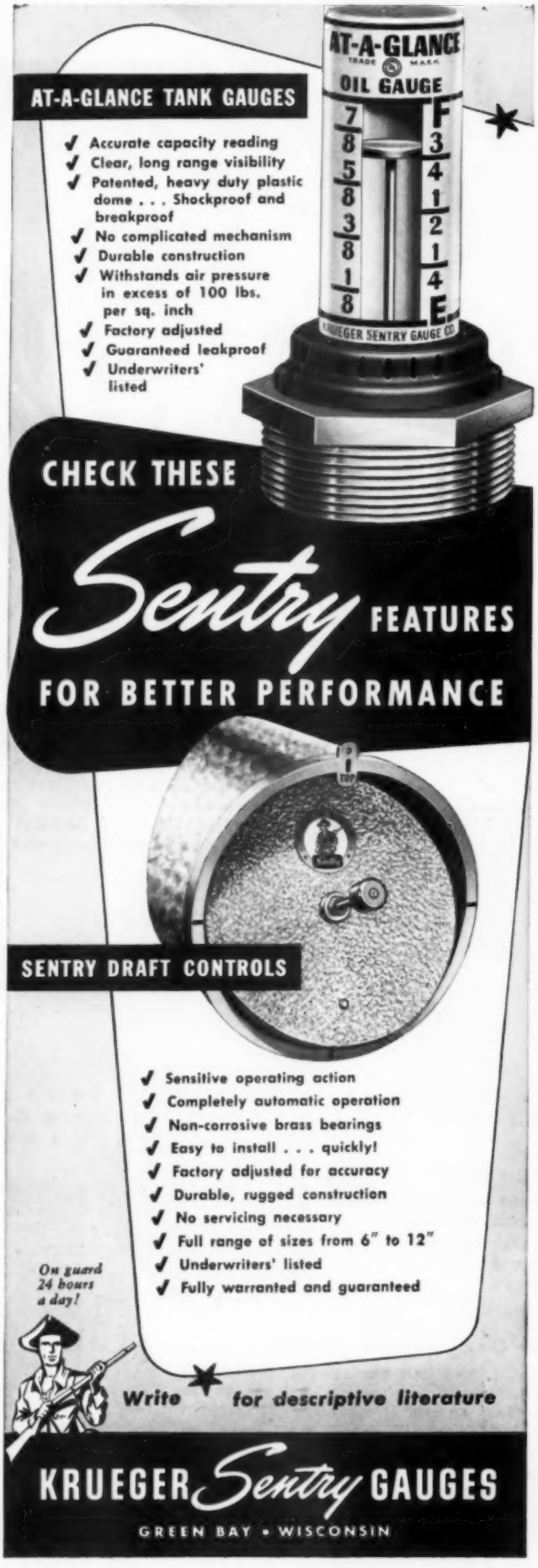
We suggest you write to the Thatcher Furnace Company, Garwood, New Jersey, who furnished the photograph of the New York dream home. —ED.

Our Annual Directory

Next month a special SHOW SECTION in our ANNUAL DIRECTORY NUMBER will feature a preview of the Ninth International Heating, Ventilating, and Air Conditioning Exposition at Chicago's International Amphitheatre, January 24 to 28. A plan of the exhibit hall and a list of exhibitors will provide a handy guide for locating products, exhibitors, and friends.

The ANNUAL DIRECTORY SECTION is an up-to-date buying reference for dealers, wholesalers, and manufacturers in the warm air heating and sheet metal industry. Manufacturers are identified by product classifications and trade names, as well as an alphabetical index.

The editorial content—added to the ANNUAL DIRECTORY and SHOW SECTIONS—will provide cover-to-cover reference throughout the year. Be sure to reserve a copy if you are not on our subscription list. Each year an extra supply becomes depleted quickly.



Excess Profits Tax in '49?

Not a chance for an excess profits tax if business slumps in 1949 says the Research Institute of America. But the tax is a strong possibility next year if profits hold even or rise. You will be hearing two main arguments for early enactment of an excess profits levy:

Labor will claim that a high tax on excess profits will discourage further price raises.

Emphasis will be placed on the revenue feature, with many urging that the tax will hit those who have the best ability to pay.

These arguments will be pressed by proponents and they will have much support in their viewpoint, but based on a continuing inflation trend. These arguments are weak otherwise. For example, the price control proposed during the political campaign appears to be losing out as many prices level off or start to drop. If business dips, the revenue feature will also be negligible. No political party wants to bring in an excess profits levy when business starts to slip because it can too easily be charged with causing the slump by imposing the tax.



WEIR-MEYER DEALERS get the cream



WEIR-MEYER MEANS MODERN HEAT FOR EVERY FUEL

GAS

Sell the ultimate in convenience and heating efficiency! Both "hi-boy" and conventional MEYER Gas-fired Air Conditioners are available now, plus Gas-fired gravity furnaces, for L. P. as well as pipe line gas. Leak-proof heating elements of one-piece welded steel for faster heat transfer.

OIL

Exclusive all-steel heating element with stainless steel combustion chamber assures peak efficiency, long-life, and freedom from servicing. Compact, smartly-styled Oil-fired Winter Air Conditioners include new "hi-boys" for basementless homes.

COAL

The famous WEIR — the original steel furnace — now gives you exclusive new improvements. New Integral Heating Element (Pat. applied for) offers amazing efficiency, new cleanliness and economy. Many WEIR steel furnaces have been in continuous operation for over 50 years—still perform efficiently.

80 years experience shows that year after year the WEIR-MEYER franchise is many dealers' most valuable asset! All equipment — for all fuels — comes from one reliable manufacturer. That makes inventories lower — estimating and installation easier. And, WEIR-MEYER quality makes it easier to get the business you want.

COMPLETE FRANCHISE PROTECTION

WEIR-MEYER's sound factory policies recognize the need for legitimate distributor-dealer profit and franchise protection. The WEIR-MEYER franchise is practical and proven — protects both your fair profit and your investment in time and money.

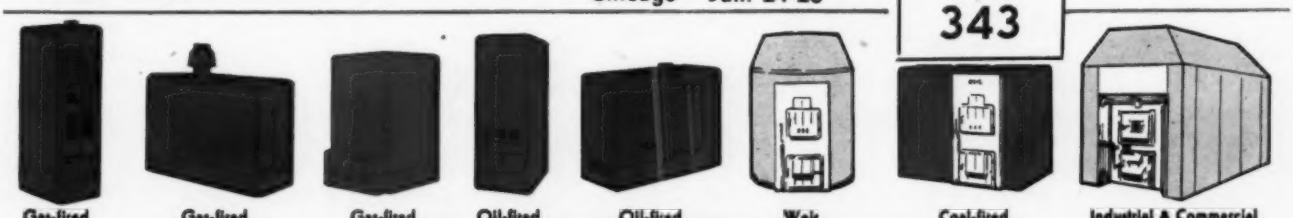
SOUND AGGRESSIVE MERCHANDISING

Your customers know and want the quality, economy, and dependability that's traditional with WEIR-MEYER equipment. Consistent merchandising and advertising helps you sell. If you're not already selling WEIR-MEYER, write today. You may be in "open" territory — eligible for franchise.

THE MEYER FURNACE COMPANY

MANUFACTURERS OF WEIR-MEYER FURNACES • AIR CONDITIONERS FOR GAS • OIL • COAL • FACTORIES: PEORIA AND PERU, ILLINOIS
GENERAL OFFICES: PEORIA 2, ILLINOIS

SEE OUR EXHIBIT AT THE EXPOSITION
Chicago - Jan. 24-28
space 343



Gas-fired Hi-boy | Gas-fired Air Conditioner | Gas-fired Gravity | Oil-fired Hi-boy | Oil-fired Air Conditioner | Weir Steel Furnace | Coal-fired Air Conditioner | Industrial & Commercial Heating Equipment

the editor's notebook

From California . . .

I am very interested in the article in the RESIDENTIAL AIR CONDITIONING SECTION of the October issue, entitled *Here's a Salesmaker—the Incinerator.*

I would like to have more particulars concerning manufacturers so I may contact them. If you would supply this information, I would appreciate it very much.

C. F. BROWN
Brown's Heating
and Air Conditioning
San Bernardino, Calif.

. . . to Canada

We are interested in securing prices on kitchen and basement incinerators, similar to those shown on page 81 of the October issue, and would appreciate it if you would furnish us with a list of manufacturers of this product in the United States, as we understand that they are not produced in Canada at the present time.

T. A. IRWIN
Robertson-Irwin Limited
Hamilton, Ontario.

. . . to Yonkers

Please furnish me with a list of manufacturers of home incinerators as described in the article on page 81 of the October issue.

GREAT EASTERN METAL
AND ROOFING CO.
Yonkers, N. Y.

Employee Training

We are in the hotel, restaurant, and cafeteria equipment business in which we deal primarily with fixture layout and construction, using large quantities of stainless, and galvanized steel.

Can you advise us where we might procure an instruction book or manual as a guide for trainees in learning this work.

W. O. HILTON
Westbrook Manufacturing Co.
Jackson, Miss.

Socialism 16 Years Ago

The following is a list of some of the principal points in the Socialist Party Platform of 1932:

A Federal appropriation of $5 billion for immediate relief for those in need, to supplement State and local appropriations.

A Federal appropriation of $5 billion for public works and roads, reforestation, slum clearance, and decent homes for the workers.

Legislation providing for the acquisition of land, buildings, and equipment necessary to put the unemployed to work producing fuel, food, and clothing, and for the erection of houses for their own use.

A compulsory system of unemployment compensation with adequate benefits, based on contributions by the Government and employers.

Old age pensions for men and women 60 years of age and over.

Health and maternity insurance.

Adequate minimum wage laws.

The reduction of tax burdens by a shift from taxes on farm properties to incomes, inheritance, excess profits, and other similar forms of taxes.

The 6 hour day and the 5 day week without reduction of wages.

A comprehensive and efficient system of free employment agencies.

Sun FUEL MASTER
OIL BURNING FURNACES

Quality and Beauty

AT LOW COST!



5 Sizes Counter-Flo Basement Type
66,000 to 200,000 Btu.

2 Sizes Utility Type Hi-Boys
85,000 and 100,000 Btu.

One Gravity Furnace—76,500 Btu.

A SIZE and TYPE for EACH HOME
NATION-WIDE DISTRIBUTION

Write—

J. V. PATTEN COMPANY

Sycamore, Illinois

THE ENTIRE INDUSTRY IS TALKING ABOUT...THE NEW

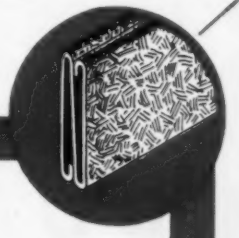
CLEATFORMER*

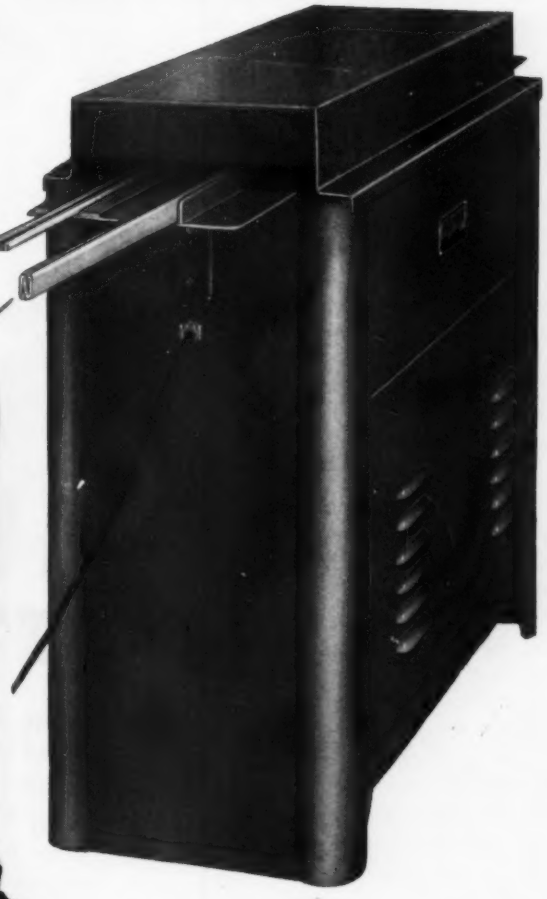
*made by the makers of the famous

LOCKFORMER



MAKES BOTH S AND DRIVE CLEATS WITH NO CHANGE-OVER





NEW SPEED . . .

S Cleats or Drive Cleats (or both at once) at a speed of 15 feet per minute! Compare the Cleatformer time of 12 seconds (for a 3 foot length) against the time to fold a similar S Cleat on a Folder or Brake!

NEW STRENGTH . . .

The S Cleat pictured, with hem on *both* edges, offers tremendous advantages in strength; lighter gauges replace much heavier ones without sacrifice of rigidity; much longer cleats are practical.

NEW ECONOMY . . .

Few sheet metal men realize that cleats cost more per pound than any other single item used in duct work. The Cleatformer saves over 80% of former cleat costs! Cleatformers carry the standard Lockformer guarantee of satisfaction.



THE CLEATFORMER PAYS FOR ITSELF QUICKLY OUT OF SAVINGS MADE

See the CLEATFORMER *at the* CHICAGO SHOW BOOTH 531

WRITE US OR SEE YOUR LOCKFORMER DISTRIBUTOR TODAY!

THE LOCKFORMER CO.

4615 W. ROOSEVELT ROAD • CHICAGO 50, ILLINOIS

the editor's notebook

The creation of a Federal marketing agency for the purchase and marketing of agricultural products.

The acquisition by bona fide cooperative societies and by government agencies of grain elevators, stockyards, packinghouses, and warehouses, and the conduct of these services on a nonprofit basis. The encouragement of farmers' cooperative societies and consumers' cooperatives in the cities, with a view of eliminating the middleman.

Source: *A Plan for America*. Official 1932 Campaign Handbook of the Socialist Party.

Adventures in Eateries

Each month Gene Brown's column *From The Editor's Chair* comes across this editor's desk and it should not be hard to imagine what happens when an editor's chair lands on an editor's desk—right on the EDITOR'S NOTEBOOK. Last month we salvaged from the crash a discerning gourmet's recommendations of where to eat when traveling from border to border and coast to coast. Since the holiday season is the time for adventures in good eating we retell Gene's gastronomical experiences which we read with relish.

He suggests if you are in the vicinity of these eating places and have just inherited a fortune or robbed junior's piggy bank, try them. His recommendations in his own words follow:

On my recent western trip, I hit Salt Lake City at the height of their peach season. At this time of the year particularly, breakfast in the very excellently appointed and managed Utah Hotel is an event worthy of note. I recommend cereal topped with sliced fresh peaches and cream, followed by a stack of wheat cakes drowned in peach juice, with a few slices of crisp bacon to give it body. It will get your day off to a good start.

Although San Francisco is full of good eating places, food seems to be secondary there. My chief enjoyment came from the Mexican dinner in the Papagaya Room of the Fairmont Hotel. The waitresses there don't spoil your appetite, either; and in addition I got to show off my Spanish—all eight words.

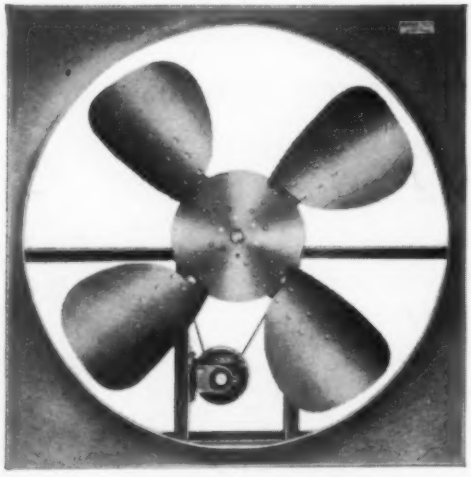
Due to a slight delay in San Francisco, I spent very little time in Los Angeles, having both my meals in the Biltmore Hotel. Last year I had an excellent dinner at La Rue's on the Strip, but it was somewhat spoiled by the nauseating performance of the veddy British set, who were determined that everyone in the place would be aware of their presence. It was topped by one character who tucked her darling peke under her arm, kissed everyone at the table and shouted her good-bye dahlings all the way to the door. It sounded like back to jolly old London at the least, but her parting shout was, "I'll see all you deah, deah people at tea tomorrow." So if you go to La Rue's, ask Otto for ear muffs.

While in El Paso I went across the border to Jaurez and had a real Mexican dinner—the kind that makes even *my* hair stand on end. This I refuse to recommend, because you might sue me. Personally, I liked it—at the time.

St. Louis still has a lot of good eating places. Belvedere Joe, an old school restaurateur, still serves plenty of the best without too much fanfare. If



The Fan that does its Work in a Whisper



MURRAY ATTIC FAN

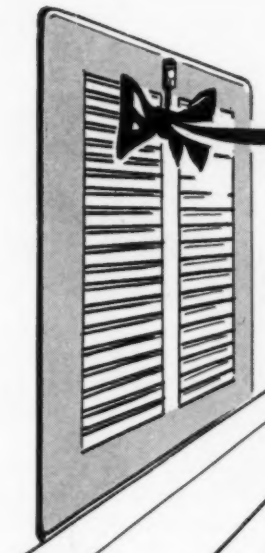
- **Deep, curved flange orifice cuts down air resistance, eliminates noise.**
- **Four, broad, deep-pitched blades provide maximum suction and steady flow of air.**
- **Resilient base motor and rubber-insulated Oilite sleeve bearing on fan shaft eliminate vibration and operating noise.**
- **Economical, quiet operation assures owner satisfaction.**

You sell satisfaction — at a profit — when you sell Murray Attic Fans. Get ready for more sales and profits next season with Murray Fans. Dealerships in certain territories available. Write us now for complete information.

THE MURRAY COMPANY OF TEXAS, INC.

DALLAS, TEXAS **ATLANTA, GEORGIA**

the editor's notebook



comfort

is What Your Customers Want From a Warm Air Heating System

MASTER BLOWERTROL

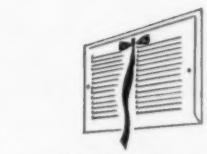
is What Every Forced Air System Needs to Give REAL Comfort in the Home

On new installations or jobs already installed, Blowertrol makes a more satisfied user of forced air heating.

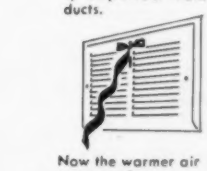
Now, at a cost within the reach of the modest small home owner you can offer a control that will end drafts—hot and cold "layers" of air—"cold 70".

THIS IS HOW IT WORKS—

It starts the motor at a plenum temperature of 100° and gradually increases the speed of the blower as the plenum temperature rises until it reaches 125°. The blower operates at full speed until the plenum temperature drops below 125° at which point it gradually decreases speed as the plenum temperature drops.



Cool air being gently expelled from ducts.



Now the warmer air starts coming.



The rooms need heat. Blower at full speed.



Thermostat satisfied—blower starts slowing down.



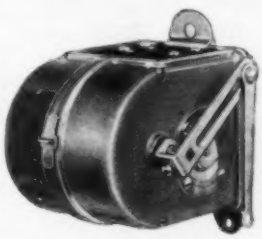
Everything comfortable—just a warm zephyr to keep it that way.

SPRING RETURN HEAT REGULATORS



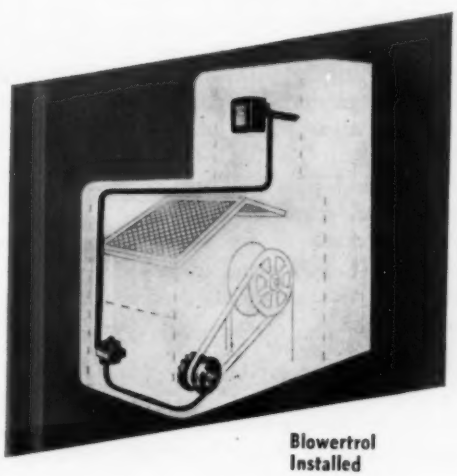
This thermostat is designed for two-wire operation and is regularly furnished in an ivory colored plastic case.

Type A 12 Thermostat



Operates to two positions. When the thermostat is satisfied or the electrical power fails the motor is immediately returned to the CLOSED or OFF position.

Type B 12 Spring Return Motor



Blowertrol Installed

THE WHITE MANUFACTURING CO.

2368 University Ave. St. Paul, Minn.

he keeps adding on to his rambling place you will be able to eat there without leaving Kansas City.

In Chicago I prefer Andre's on East Ohio. Spiro's "pastiche", or whatever he calls his appetizer, is something you won't find anywhere else. It's delicious. For variety, I like the exotic food served at Don the Beachcomber's. Be sure to start out with some—not too many—of his rum concoctions and don't miss the fried shrimp and rib appetizers.

My Cleveland friends insist on protesting my claim that their city is not food conscious. The best seems to be obtainable at a night club, the Stage Door, where they have a chef who is not afraid to add a little seasoning. Most Cleveland eateries don't bother.

Currently, and for some time past, my favorite eating spot in New York has been the Press Box, a friendly place on 45th off Lexington. Freddie and Henry, the proprietors, offer you fine food in pleasant surroundings. Try their jumbo shrimp, filet mignon and their chef's salad with a dressing that has a hauntingly delicious flavor. As an example of the hosts' hospitality, they are not averse to serving a good customer a drink on the house. Very few modern bistro keepers, with their policy of gyp 'em and rush 'em out, realize the dividends paid by a gesture of this sort.

Well, that's all for tonite, kiddies. The girl friend advises me that the hamburgers and beer are ready.

Reader Wants Nails

We are having considerable trouble getting large headed roofing nails as our source of supply is about two years behind delivery at the present time.

We wonder if you could advise us who makes this kind of nail, in lieu of this.

H. C. SMITH
H. C. Smith Co.
McKeesport, Penn.

Warm Air for Dry Kiln

We have recently been requested to design a heating, humidifying, circulating, exhaust, and control system for a soft wood (pine) dry kiln. A warm air heating system is desired.

Can you give us any help on this problem? Can you tell us if warm air furnaces have been successfully used for purpose in the past? If you are not able to throw any light on the subject, can you tell us where we may obtain the information we need?

H. L. GODWIN
Nicholson, Inc.
Raleigh, N. C.

To Cure Inflation

Inflation is simply a condition where demand for goods and services greatly exceed supply.

And demand is money—money owned by the people, who use it to buy or bid for goods. This money owned by the people began to increase before the war, and between 1939 and 1947 the money supply was trebled.

Something basic, drastic, and quick has to be done to remedy the situation.

It will not be solved until public and political leaders begin dealing with causes instead of tinkering with results.



Available NOW!



BS&B

UNDERGROUND and BASEMENT TANKS

With the facts well in hand, Black, Sivalls & Bryson's production engineers "outguessed" the fuel oil supply situation. The result is that B S & B underground and basement oil storage tanks are available NOW in quantities, all you want!

These underground and basement tanks are top quality welded steel, fabricated by a manufacturer of more than 55 years' experience. Capacity—approved by U. S. Underwriters' Laboratories. Legs extra. Write or wire TODAY for prices and complete delivery information. Black, Sivalls & Bryson, Inc., Power and Light Building, Kansas City 6, Missouri.

EFFICIENCY RELIABILITY FOREIGN INQUIRIES INVITED Cable Address: BLACK, KANSAS CITY, U.S.A.
BLACK, SIVALLS & BRYSON, INC.
KANSAS CITY, MO. OKLAHOMA CITY, OKLA.

Economical...CLEAN BURR-FREE SHEARING

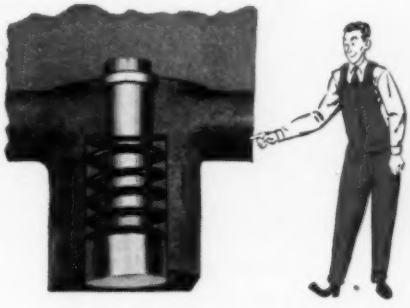
Massive Construction
for Rigidity



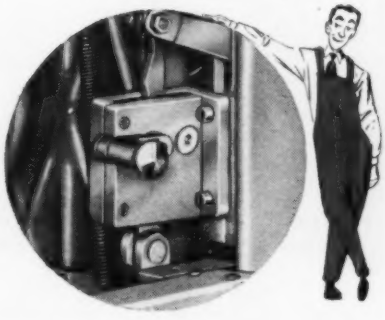
Hardened Steel
Sliding-key Clutc'

Wysong and Miles No. 1272—6 foot, 12 gauge

Compensating Action
of Each Holddown Foot



Non-Repeat Unit
for Safety



Precision Back Gauge
Adjustable to .0078 inch



PRECISION FEATURES INSURE SPEED AND ACCURACY

You'll get long, dependable performance from this finely engineered *Wysong and Miles* Power Squaring Shear. Built for economy, it has the precision features necessary for rapid, safe and accurate shearing in the production rush of today . . . operators are enthusiastic about the fine work done by this improved squaring shear, on the job in sheet metal plants throughout the country.

The parallel, ball-bearing back gauge can be quickly changed in units of .0078 (1/128th) of an inch by a handwheel dial reading. The individual spring actuated plunger in each holddown foot acts as a powerful independent clamp . . . metals of varying gauges or narrow strips can be sheared without adjustment. The non-repeat unit of the positive hardened steel clutch stops shearing action after each cycle; or it can be set for continuous shearing. High speed blades are standard equipment . Other *Wysong and Miles* Power Squaring Shears in *8 foot, 12 gauge; 6 foot, 10 gauge; 6 foot, 14 gauge; and 52 inch, 14 gauge capacities.*

Write for complete information on Wysong and Miles Sheet Metal Machines . . . *Motorized, Air-Power and Foot-Power Squaring Shears; Power and Hand-Operated Bending Rolls; Combination Machines.*

WYSONG and MILES Co

621 FULTON STREET GREENSBORO, NORTH CAROLINA

THE FINEST IN SQUARING SHEARS AND BENDING ROLLS



Season's Greetings

Once a year the Holiday season comes along to lift our eyes and hearts above the daily grind and bring us an extra measure of joy and gladness. ☆ At such a time our thoughts naturally turn to those close to us with the desire that they may share richly in the season's gladness. ☆ Laying aside our business cares, therefore, for the moment, we take this opportunity to extend to our customers and friends our sincere Holiday greetings with the earnest wish that they may fully enjoy the happiness of this Yuletide season. ☆ Here's to you and yours for the best of good cheer the Holidays can bring.

THE RYBOLT HEATER COMPANY

615 MILLER STREET ★ ASHLAND, OHIO

Air Conditioning

MEANS HUMIDIFIED AIR...

HUMIDIFIED BY A Skuttle "600" HUMIDIFIER

Saves Fuel
Improves Comfort
Health



1 The Skuttle Series "600" Humidifier is all copper and brass for long life and no rust. The patented Antisiphon valve is the most durable and satisfactory available.

2 **Self-Cleaning — Self-Flushing —** No dealer service calls.

3 **Easily Adjustable** — For round, square, pitched or straight plenum chambers.

4 **Front Leveling Lock** — For proper balancing and leveling.

5 **Patented Vapoglas Plates** — Absorb 70% more water per pound than ceramics — evaporates with natural air currents — don't need red hot bonnet temperatures.

6 **Only One (1) Size** — To stock — Series "600" carries to and including 180,000 BTU's.

7 **Only One (1) Opening** — To cut in plenum chamber (not 3 or 2).

8 **Only Two Parts** — One slides into the other.

5170

Our Repeat Business Shows Series "600" Is A Fast Moving, Profitable Item

Your Jobber Stocks
Skuttle Humidifiers

Skuttle

THE Skuttle MANUFACTURING COMPANY • 4099 BEAUFAIT • DETROIT 7, MICH.

AIR EQUIPMENT TO HELP YOUR BUSINESS

For the RIGHT Air Delivery

√ WHERE *it's wanted*

√ WHEN *it's wanted*

FANS by "Buffalo"



specify a "Buffalo" FAN

Whether an installation job calls for simple "spot" ventilation with a panel fan or an entire new ventilating system, you can count on the *right* kind and amount of air-moving for the purpose with "Buffalo" equipment.

"Buffalo" offers a complete line of fan units — Panel, Vent Sets, Axial Flow, Centrifugal—Exhausters, Air Conditioning Cabinets, and other equipment among which you will find the A-1 performer for the specific job.

A full series of descriptive Bulletins is on hand to give you the information you need. Write *today* for yours!

EQUIPMENT FOR

★ VENTILATING
★ HEATING
★ COMFORT COOLING
★ PROCESS COOLING
★ AIR TEMPERING
★ AIR WASHING
★ EXHAUSTING
★ BLOWING
★ FORCED DRAFT
★ INDUCED DRAFT
★ PRESSURE BLOWING
★ CLEANING
★ DRYING

BUFFALO FORGE COMPANY

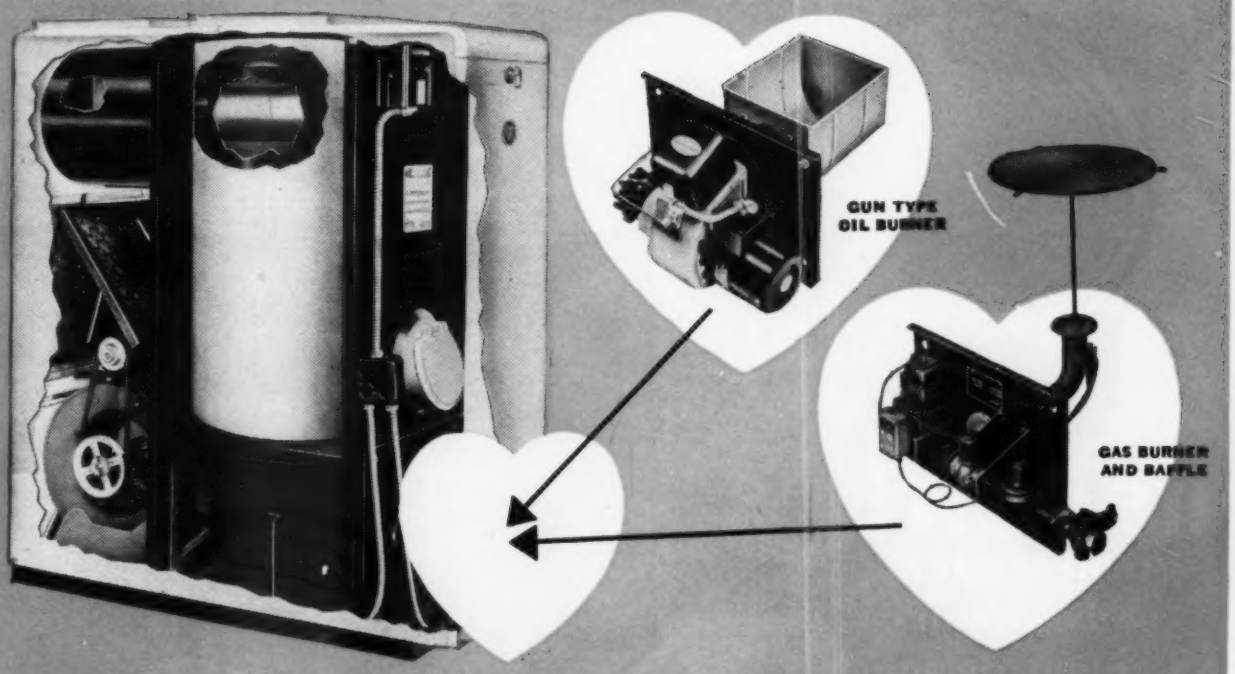
504 BROADWAY BUFFALO, N. Y.
CANADIAN BLOWER & FORGE CO., LTD., KITCHENER, ONT.
Branch Offices in All Principal Cities



CUTTING AIR COSTS IN EVERY BRANCH OF INDUSTRY

New Two-Fuel Winter Air Conditioner

—for either oil or gas!



—the RICHMOND furnace with "2 hearts"

easy to stock . . easy to install . . easy to change-over!

For Gas:—As a Gas Winter Air Conditioner, *complete* unit (in two sizes) approved by A G A for all types of gas, including LP, and for installation anywhere in the United States; from Atlantic City to Denver, at sealevel or a mile high.

For Oil:—As an Oil Winter Air Conditioner, oil burners for both size furnaces listed with Underwriter Laboratories under CS-75.

Richmond gives you both oil and gas burners, the heart of the heating system, each on a mounting plate for easy, fool-proof installation or quick change-over. Switch from oil to gas (or vice versa) can be made in less than an hour.

By stocking only two furnaces (AS 12 and AS 23) you have four conditioners—saving you up to 50% on your furnace storage and inventory costs—and you are ready for either oil or gas installations. Furnace unit, only 23" wide, is shipped assembled and internally wired in one carton (Weighs less than 395 lbs.). Burner units packed separately.

Because of the easy storage, easy installation and easy change-over, this new Richmond Winter Air Conditioning unit is truly—

A Unit Designed With The *TRADE* In Mind.

FOUR CONDITIONERS—TWO FURNACES

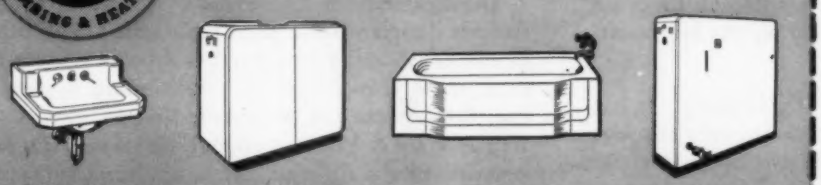
AS 12: Output-Gas: 72,000 Btu. Oil: 75,000 Btu.
AS 23: Output-Gas: 92,000 Btu. Oil: 105,000 Btu.
Whiter-white Richmond Enameled steel jacket—23" wide x 47" deep.
Steel base and channels—no "grouting" needed.
***Furnace unit illustrated: #AS 23.**

RICHMOND RADIATOR COMPANY

AFFILIATE OF REYNOLDS METALS CO.

When we started back in 1867 Two-Fuel was either coal or wood—but . . . "We've come a long way since then."





Plumbing Fixtures: Enameled Cast Iron Ware Vitreous China Porcelain Glass
Heating Equipment: Oil & Gas Winter Air Conditioners Gas Boilers Radiators

CLIP AND MAIL COUPON TODAY

Richmond Radiator Company
19 East 47th Street, New York 17, N. Y. AA-12

Gentlemen:

I am interested in the New Richmond Two-Fuel Winter Air Conditioners. Please send me full details. No obligations, of course.

Name.....

Company.....

Address.....



it's NEW!
Another great advance in heating design

Mueller Climatrol

You combine standard modular units to fit any job! Sell other units later for added profits!

Once again the Mueller Climatrol dealer is out in front — with a line that outsells his competition! *And that position assures you a profitable volume of sales.*

This time it's a new idea — *modular furnaces* — an idea that makes standard furnace designs obsolete. It's an idea that sets a *new* standard in modern home planning.

What is Modular Design?

It's the newest idea in home-planning — the standardization of sizes of all building materials and units. This makes parts interchangeable; they are produced at lower cost, assembled on the job faster, easier, and with less waste.

The idea started in the building industry. It has the blessing of architects and builders—the support of such authorities as the American Standards Association, the Housing and Home Finance Agency.

Modular design has even been applied with spectacular success to modern furniture. And now *you* can offer Mueller Climatrol Modular Furnaces!

Mueller Climatrol Modular Furnaces

The illustrations above show you how modular furnace design works. Each basic unit fits all others in any combination you need — from a gravity furnace to a year-'round air-conditioning system. A complete system can be installed all at once — *or a step at a time.* You can change or reverse the combination to the right or left at any time, or expand it. Just switch or install the additional Mueller Climatrol modular units your customer wants.

● These Mueller Climatrol Heating and Air-Conditioning Systems are all combinations of these standard Mueller Climatrol Modular Units.

	Module 1 Heat Exchanger	Module 2 Vap. Oil Burner	Module 3 Atom. Oil Burner	Module 4 Gas Burner	Module 5 Blower-Filter	Module 6 Cooling Coil and Unit	Module 7 Vestibule
Gravity Oil Furnace	■	■	■				■
Gravity Gas Furnace	■			■			■
Oil Winter Air-Conditioner	■	■	■		■		■
Gas Winter Air-Conditioner	■			■	■		■
Oil Year-'round Air-Conditioner	■	■	■		■	■	■
Gas Year-'round Air-Conditioner	■			■	■	■	■

Modular Furnaces

Extra Sales and Profits for You

No one else can offer anything like this. Here's how it sells for you:

Home owners like it! You offer them a heating system engineered to fit their exact needs and budget. They know they can change fuels (oil, gas, or L.P. gas) by switching burners, expand their system as they can afford it — and always wind up with the same completely engineered system they'd have installed if they had bought it all at once.

Builders and architects like it! They believe in modular design. You offer equipment in keeping with their own progressive ideas, equipment that fits into their planning perfectly.

You offer better value! Standardized parts simplify the manufacturing process. For the same cost, we can build *more* quality into every Mueller Climatrol Furnace you sell — thanks to modular design.

One sale leads to another! The original sale is the first link in a chain of future sales, as your customer expands his initial installation. Once a customer *always a prospect* for profitable repeat sales.

You cut your operating costs! There's no need to keep a large inventory of varied complete furnaces. With a balanced stock of modular units, you're set for any job from the simplest to the most complicated. Think what a difference that can make to your buying, stocking, and warehousing expenses!

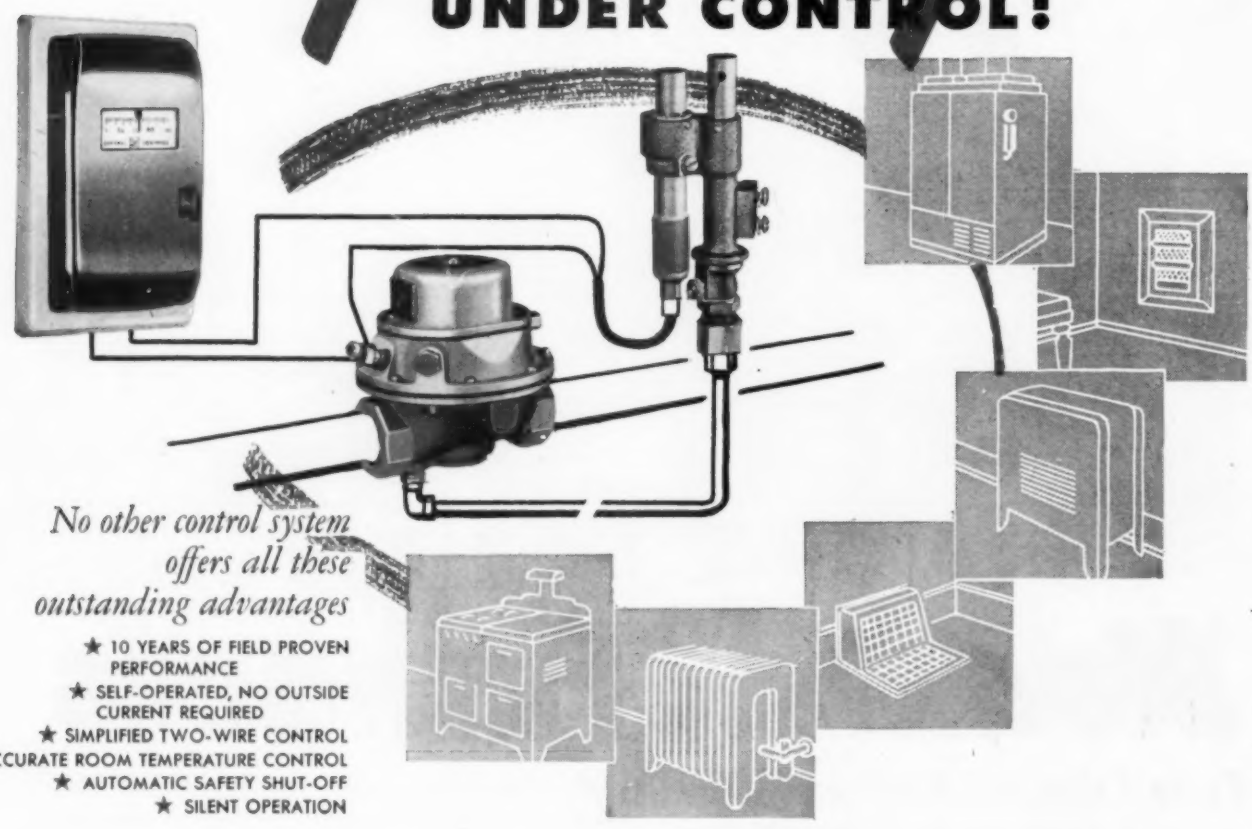
Back this idea for all it's worth! If you are a Mueller Climatrol dealer, you're set for prosperous selling. If you're not a Mueller Climatrol dealer — plan now to become one. It's hard to buck a winner, *profitable to back one!* Write today for full information . . . *L. J. Mueller Furnace Company, 2010 West Oklahoma Avenue, Milwaukee 7, Wisconsin.*

MUELLER Climatrol

REG. U.S. PAT. OFF.



Completely UNDER CONTROL!



No other control system offers all these outstanding advantages

★ 10 YEARS OF FIELD PROVEN PERFORMANCE
★ SELF-OPERATED, NO OUTSIDE CURRENT REQUIRED
★ SIMPLIFIED TWO-WIRE CONTROL
★ ACCURATE ROOM TEMPERATURE CONTROL
★ AUTOMATIC SAFETY SHUT-OFF
★ SILENT OPERATION

THE NEW 500 M. V. B-60 COMPLETELY SELF-CONTAINED AND SELF-OPERATING CONTROL SYSTEM *ORIGINATED* BY GENERAL CONTROLS

For natural, manufactured or L.P. gases. For all kinds of domestic, commercial and industrial applications. System consists of the B-60 pilot operated diaphragm type gas valve, the T-70 Series Snap-action Thermostat, which is scientifically correct in design, and the new improved ingenious PG-9 Pilot Generator which produces 450 to 500 millivolts of operating current, safety control, and main burner ignition. The B-60 Series of controls have set new standards throughout the gas industry. For complete specifications on the GENERAL CONTROLS broad line of Automatic Pressure, Temperature and Flow Controls, request new Catalog and Service and Instruction Manuals.

Automatic, Safe, Silent and Self-Operated

GENERAL CONTROLS

Manufacturers of Automatic Pressure, Temperature & Flow Controls

FACTORY BRANCHES: Birmingham (3), Boston (16), Chicago (5), Cleveland (15), Dallas (2), Denver (10), Detroit (8), Glendale (1), Houston (2), Kansas City (2), New York (17), Philadelphia (40), Pittsburgh (22), San Francisco (7), Seattle (1) • **DISTRIBUTORS IN PRINCIPAL CITIES**



HERE'S AN AMAZING STATEMENT

YOU CAN SHOW SUBSTANTIAL FUEL SAVINGS ON PRACTICALLY EVERY OLD BURNER IN YOUR TERRITORY BY REPLACING WITH

HEIL *Automatic Heat*

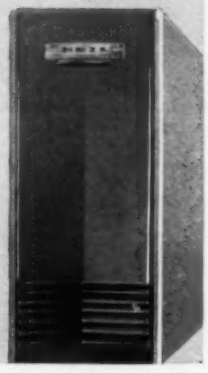
Ten to one, new Heil units will exceed in efficiency *any old burner in your territory.* That's a strong statement—but a true one—and when you tell it to your prospect you've got not only your foot, but a new Heil unit in the door. When you show your prospect how Heil can slash his gallonage—and his fuel bill—by 20% to 40%, you have a sale. Count the number of old burners in your territory . . . there's your Heil market. It's tremendous, it's easy, it's profitable.

HEIL UNITS USE LESS FUEL

New Heil units burn oil more efficiently, extract more heat from combustion. Better design plus quality construction make the difference. Heil units are pre-assembled and pre-wired for a bonus in time saved for you. For full details about the fast-selling Heil line and franchise information, *mail the coupon right now!*

HERE ARE FACTS TO PROVE HEIL'S STORY

A furnace and conversion burner combination that was new in 1942 was replaced with a new Heil Furnace-Burner unit. The change-over took less than a day. Here are results of tests made before and after the change: CO_2 rose from 7.8% to 11.9%. Stack temperature dropped from 628° to 431° Overall efficiency soared from 54.2% to 79.8%! And this is but one case in thousands just as remarkable!



THE REPLACEMENT MARKET IS HUGE

GO AFTER IT NOW!

THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

THE HEIL CO., Dept. A-12
Milwaukee 1, Wisconsin.

Please send me your new dealer specification sheets showing full color reproductions of Heil Boiler-Burner and Furnace-Burner models with complete details about a Heil franchise and openings in my territory.

Name.....

Company.....

Address.....

City.....**Zone**...**State**.....

Manufacturers of Quality Automatic Heating Equipment Since 1924



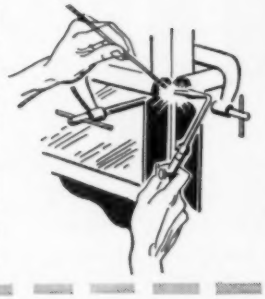
Timely Tips on Stainless Steel Shop Practices

(No. 11 in a series)



SOLDERING

A small amount of glycerine added to some commercial stainless steel fluxes will help you improve solder adhesion on hard, polished ENDURO surfaces. The glycerine eliminates the tendency of flux to stand up in drops by giving it the right surface tension to wet the smooth surface thoroughly.



SILVER BRAZING

Clean surfaces are essential for proper flow of the brazing alloy. Mechanically clean off all dirt, grease or surface oxidation of the metal to be joined with ENDURO Stainless Steel. If grease or oil has penetrated the metal, clean chemically. After cleaning, the material should be fluxed before heating to prevent surface oxidation.

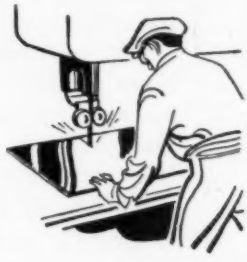
CLEANING

Soap and water quickly remove ordinary deposits of dirt and grease. Whenever possible, ENDURO should be rinsed and dried after washing. In cases of tightly adhering deposits, ENDURO may be cleaned easily with stainless steel polishing powder. Caution: ordinary steel wool or steel brushes should *never* be used on stainless steel.



SAWING

For this operation, high speed or similar alloy type blades are recommended—the fine tooth wavy type blade being preferred on thin sections and coarse teeth on heavy sections. In all cases the pressure should be constant. Use sulphur chlorinated base oils for lubrication.



These brief tips are examples of all the useful information packed into the two books Republic has published for you—"THE FABRICATION OF REPUBLIC ENDURO STAINLESS STEEL" and "THE WELDING OF REPUBLIC STAINLESS STEEL." The experience of thousands of sheet metal shops has helped develop these complete guides to working with stainless steel. They're written in your language. If you haven't already received your free copies, write for them.

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N.Y.

...AND THE BEST TIP



ALWAYS USE...

Republic
REPUBLIC STEEL
ENDURO STAINLESS STEEL

Other Republic Products include Black, Galvanized, Galvannealed and Electro Paintlok Sheets—Toncan Iron Sheets

"It's the VICTOR LINE for '49!"



Close your sale on the first call with a

VICTOR

TABLE TOP DEMONSTRATOR

You can prove to your prospects, while comfortably seated in their own homes, the additional heat provided by VICTOR Heat Radiating FINS . . . from a given amount of any kind of fuel. The demonstration is honest, convincing and entirely *VICTOR*. It closes sales fast. VICTOR patented, Heat Radiating FINS plus the many other exclusive features of the beautiful VICTOR line, sell *easier* . . . sell *faster* . . . sell *more*.

. . . THE HOTTEST FURNACE DEMONSTRATION ON THE MARKET

In this miniature furnace are twin thermometers. They tell the story dramatically. One side of this furnace has FINS—the other side does not. Heated by one light bulb, it shows how the extra heating surfaces of the FINS heat air to a higher temperature FASTER. It's visual PROOF that VICTOR FINS DO save fuel.

WRITE US!

Sell the Victor Line in '49!

COAL • GAS • OIL FURNACES • OIL BURNERS • STOKERS • BLOWERS • ACCESSORIES

HALL-NEAL FURNACE CO.

VICTOR *Quality Furnaces Since 1890*

1322 N. CAPITOL AVENUE • INDIANAPOLIS 7, INDIANA

THE FIRST SHEET METAL SCREW... STILL FIRST WITH SHEET METAL MEN



THE ORIGINAL PARKER-KALON TYPE "A"



FOR HEAVY SHEET METAL WORK

Use P-K Type "Z" for sheet metal .050" to .200" thick. For sheets or plates over .200" thick, use the heavy duty Hex Head Type "Z". For stainless steel installation in dairies, laboratories, hotel kitchens, etc., use Type "Z" stainless.

● It's no easy trick to make a hardened self-tapping screw. It must be hard.—to tap its own matching threads clean and fast. But if it's too hard, the head may pop off when you drive it. Parker-Kalon learned the trick when they pioneered the Type "A" Sheet Metal Screw,—learned how to keep hardness and toughness properly balanced in *every* screw. And there's no substitute for 35 years' experience. That's why P-K Type "A" is still first choice of leading sheet metal contractors everywhere.

If you are still tapping, bolting, riveting, or soldering where you could use sheet metal screws, get acquainted with P-K Type "A", and all the others in the famous P-K family of fasteners! Start making the savings you're missing!



MEET THE FAMILY OF P-K FASTENINGS

Write for Booklets Nos. 480 and 475A. Booklet 480 lists proper hole sizes for efficient driving and maximum security, plus other helpful information. SAMPLES, too. Just tell us what you are fastening. Parker-Kalon Corp., 200 Varick St., New York 14

Sold Only Through Accredited Distributors

P-K® The Original

A TYPE AND SIZE FOR EVERY METAL AND PLASTIC ASSEMBLY



PARKER-KALON SELF-TAPPING SCREWS

PARKER-KALON PRODUCTS COLD-FORGED SOCKET SCREWS, WING NUTS, THUMB SCREWS • HARDENED SCREWNAILS AND MASONRY NAILS SHUR-GRIP FILE AND SOLDER IRON HANDLES • METAL PUNCHES • DAMPER REGULATORS AND ACCESSORIES



This hospital therapy unit made of U·S·S Stainless is representative of the many highly profitable jobs that you can take on if you are working with Stainless.



The popular appeal of Stainless Steel means more and better jobs for you



Stainless Steel equipment parts like these are used in enormous quantities in the processing and allied industries. Simple in form they can be turned out by any competent sheet metal shop. And there's money in them.

You can't deny the fact that Stainless Steel is riding high as the people's choice today.

Ask a housewife what she'd like most in a kitchen sink and she'll answer "Stainless." Talk to a storekeeper and suggest Stainless Steel for fixtures or decorative trim and watch his eyes light up. Tell a home-owner that gutters and down-spouts can be had in permanent Stainless Steel and he'll say, "I wish I had them on *my* house."

It's because *everybody* likes Stainless that you're missing a golden opportunity if you are not going after this profitable, reputation-building business.

Fabrication is not difficult — and U·S·S Stainless is available

If you haven't worked with Stainless Steel before, you're in for a pleasant surprise. You will find that handling U·S·S Stainless through your shop presents no unusual problems. It can be readily fabricated on the same equipment you now use for other sheet metals.

And, if you have been having trouble getting other materials, this will cheer you up. We can supply your requirements completely in No. 2B and No. 4 finish Sheets. Ready, too, for immediate delivery and in adequate supply are: Bars to meet high standards of machinability; Plates in sizes up to 120 inches wide and 360 inches long; Seamless Tubing; Pipe; Angles; Channels; as well as Welding Electrodes—in all standard grades and specifications.

• • •

For prompt service, contact your regular supplier, or phone, wire, or write to one of the warehouses of United States Steel Supply Company. You'll find one in your city or not far away.

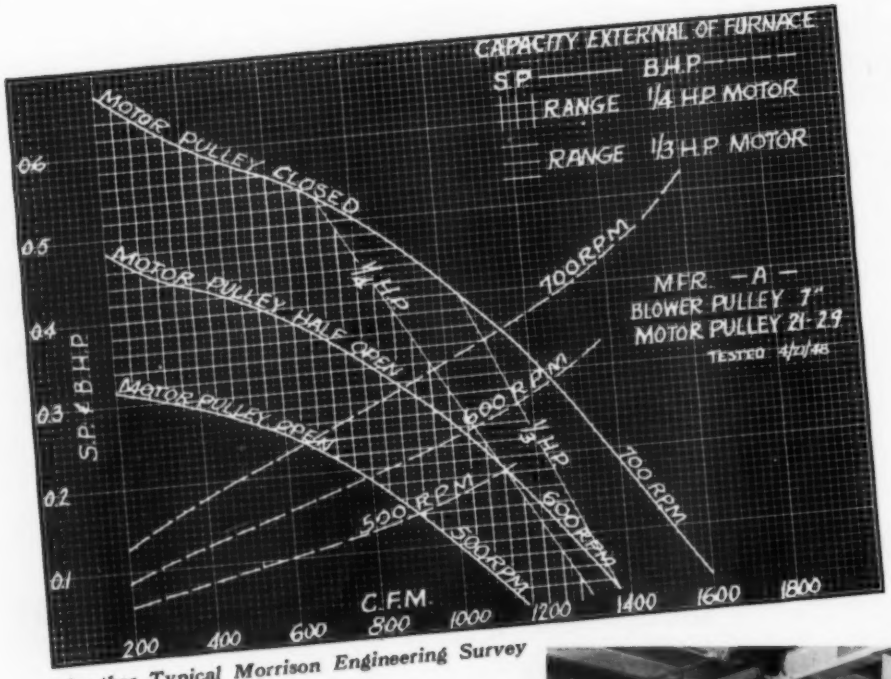
AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO · CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO · TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
NATIONAL TUBE COMPANY, PITTSBURGH · UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST TO COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

8-1376

UNITED STATES STEEL



*Another Typical Morrison Engineering Survey

THIS GRAPH TELLS AN IMPORTANT STORY

Customer's Equipment being tested in Morrison Laboratory



MORRISON *Cooperates with* Engineering Staffs of Furnace Manufacturers When Designing New Products

MORRISON *Airstream* Blower Wheels

Morrison Engineering Service makes it unnecessary to design your product around a catalogue blower. We design the blower to meet your requirements.

***Sample of Test Data Prepared for a Morrison Customer.**

Curves were run with Motor Pulley closed, half open and open—3 performance curves external of unit. Thus the range through the furnace that blower operates with ¼ HP and ⅓ HP was determined.

Curves were used by customer to determine how much to close or open motor pulley.

Write for latest Morrison Brochure.

MORRISON Airstream PATENTED

MORRISON PRODUCTS INC.

16816 Waterloo Road

CLEVELAND 10, OHIO

Luxaire 1st. again

with a NEW Plate-Mounted OIL BURNER

OUTSTANDING IN Installation... Servicing Features



Burner Chassis being placed on 4 Positioning Studs



A complete Burner Installation

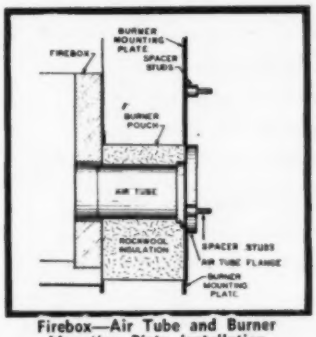
Here's the greatest advancement in oil burners ever offered to the heating trade.

An oil burner that has fool-proof installation and service features.

An oil burner that is always installed in correct position.

Install the firebox and air tube in the combustion chamber—attach the burner mounting plate to front of the unit—pick-up the burner chassis and place it on the 4 spacer studs on the burner mounting plate —securely tighten 4 nuts and the burner is mounted into place.

Furthermore, in servicing or inspecting, the entire burner chassis can be removed from the burner mounting plate, without in any way disturbing the air tube or firebox. After servicing, the burner chassis goes back in the identical same position—back on the same positioning studs on the burner mounting plate—quickly, easily, securely.



Firebox—Air Tube and Burner Mounting Plate Installation

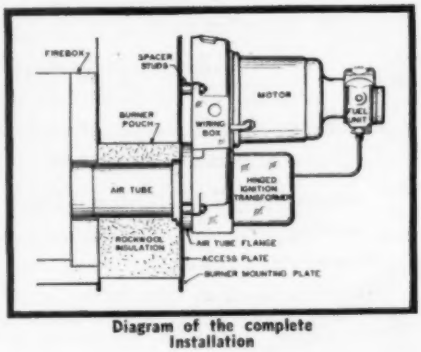


Diagram of the complete Installation

Send for literature and name of nearest Luxaire jobber.

THE C·A·OLSEN MANUFACTURING COMPANY

Luxaire HEATING & AIR CONDITIONING UNITS

ELYRIA 12, OHIO

HEAT REGULATED THERMO-DRIP HUMIDIFIERS



Adjusts Automatically to every Humidifying Need

There's no reason why you shouldn't enjoy the extra efficiency—extra economy—extra ease of installation of Thermo-Drip Humidifiers. Especially since they come to you at no extra cost.

Thermo-Drip Humidifiers achieve perfect balance of humidity and temperature at all times. Faster evaporation is caused by thin layer of water on stainless steel pan.

Once installed, Thermo-Drip Humidifiers require little or no attention. The bi-metal thermostat does all the work—supplying the correct amount of moisture.

Write today for free literature, including prices and deliveries. Dept. **A128**

Automatic
HUMIDIFIER CO.
CEDAR FALLS, IOWA

Another homeowner

"laying his cards on the table"

...tells his neighbors about YOU and the PETRO you sold him!



YES, STILL ANOTHER HOMEOWNER has discovered Petro always deals a "full house" of heating satisfaction. Nothing else can touch it in performance! Note how, in his pride of ownership, he talks about Petro year 'round reliability, about Petro luxuriant comfort on less fuel, and particularly about *you* and the *expert installation* you've given him.

No wonder a Petro becomes *your* winning hand for a bigger stake of neighborhood oil burner business!

Contact the established plumbing and heating jobber in your wholesale trading area today. Check the facts on Petro oil burners, boiler burner and furnace burner units, water heaters.

WHAT ELSE DO YOU GAIN WITH PETRO?

OUTSTANDING SELLING FEATURES, such as patented "Tubular Atomization" assuring your customer more heat from less fuel.

VIGOROUS PROMOTION THROUGH NATIONAL ADVERTISING, reaching every oil burner prospect in your territory... building up a preference for Petro and helping pre-sell *you* as a leading heating contractor in your community.

PRODUCT DEPENDABILITY, reflecting over 45 years' oil heat "know-how" of the world's oldest, largest exclusive oil-heat equipment maker.

PETROLEUM HEAT AND POWER COMPANY
Stamford, Connecticut

Makers of Good Oil Burning Equipment Since 1903

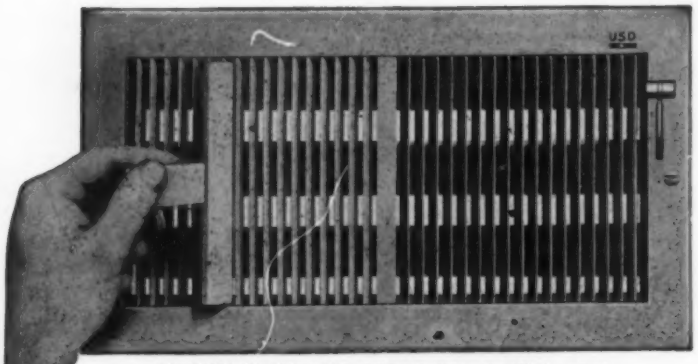
REFINERIES... FUEL OIL STORAGE AND DISTRIBUTION TERMINALS
NATIONWIDE OIL BURNER SALES AND SERVICE FACILITIES

PETRO
REG. U.S. PAT. OFF.
OIL BURNERS • BOILER-BURNER UNITS
FURNACE-BURNER UNITS • WATER HEATERS

The Economical Auer 4-WAY

AIRO-FLEX "4400" Series Registers

Adjustable for Right or Left also Up & Down Directional Flow



No. 4432 Airo-Flex Adjustable Register (multiple valve)

Recent sales figures show this popular "4400" Series air conditioning register to be more in demand than ever before. Apparently many contractors are finding this Auer multiple valve model economical enough to use on jobs where, previously, they would have installed single louvre registers. In the Airo-Flex "4400" you have a genuinely fine quality register, neatly turned out, smoothly operating, 4-way directional, yet moderately priced. The entire design and working mechanism have been kept as simple as possible.

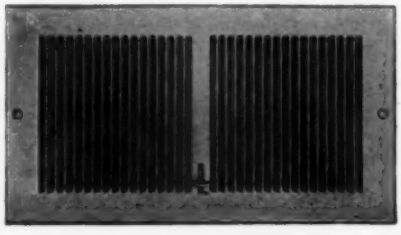
This Airo-Flex has horizontal multi-valve deflecting blades governing up-and-down flow. Setting of blades is shown by indicator on face. Sturdy vertical fins on face are also easily adjusted to desired right or left angles, with turning tool. This is an outstanding value in a 4-way register and can be used with pride on any job.

The same design face is available in the "4000" line, with single valve, for right or left flow, as shown below, and also in the "7000" series, with horizontal fins.



Back view of Airo-Flex No. 4432 Register

No. 4032



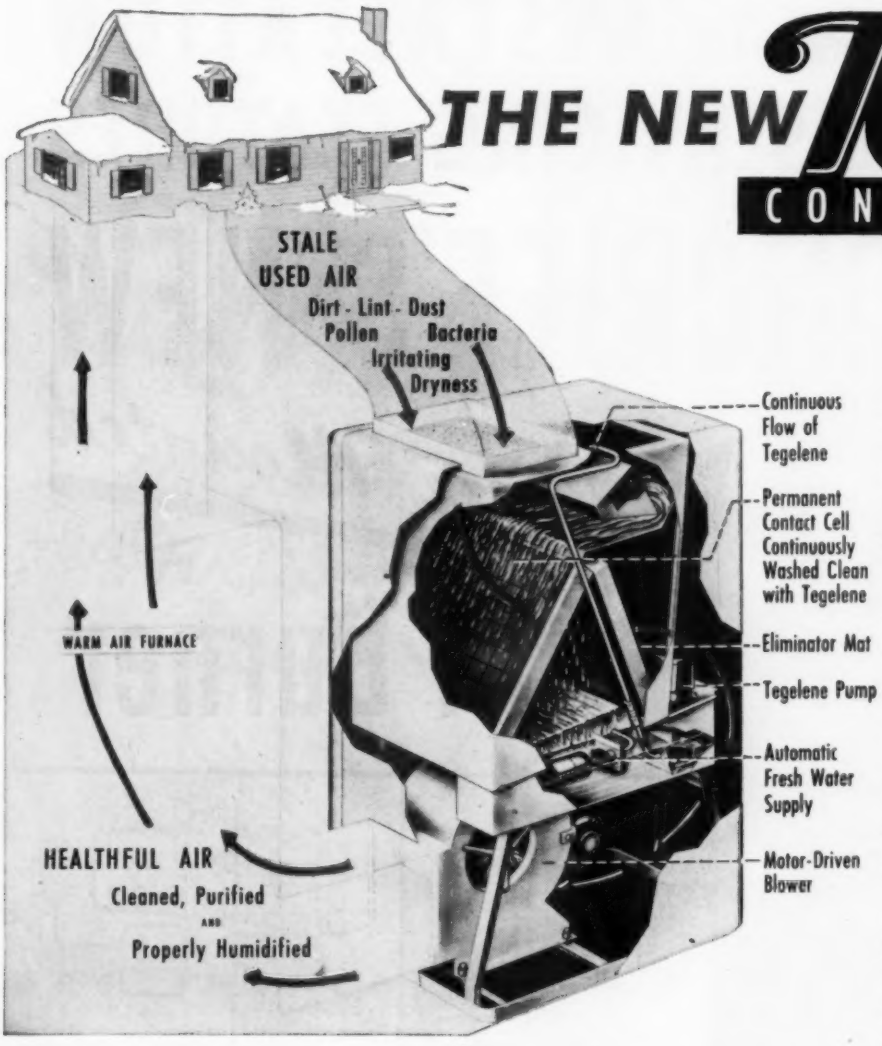
Auer makes a complete line of high grade registers for all your gravity or air conditioning needs. Auer Register Book (or special Catalog "G" on flat stamped metal Grilles) mailed on request.

THE AUER REGISTER CO., 3608 PAYNE AVENUE, CLEVELAND 14, OHIO

Auer REGISTERS
& GRILLES for AIR CONDITIONING & GRAVITY

INTRODUCING....

THE NEW TEG CONDITIONER



For many years our engineers have been developing, testing and improving our TEG Conditioner. Units operating in many actual field installations are under constant direct observation by our engineers and technicians. Germ-killing properties are tested under strict scientific conditions at a nationally known university laboratory.

● Now, after our years of research, test and development, the TEG Conditioner is ready for *your* use —simple to install, trouble-free in operation, proved in the field.

● The TEG Conditioner is the only air treating unit which humidifies and controls relative humidity, cleans, freshens and sterilizes the air in one efficient operation. It is used primarily in conjunction with a warm air heating system. Formerly, it was necessary to have a separate unit to perform each of these functions. Now, the TEG Conditioner —a single unit—does the job for you economically and reliably.

● For full details, and application to your problem, get in touch with us immediately.

See our exhibit in Booth Number 346 at the 9th Heating & Ventilating Exposition, International Amphitheatre, Chicago, January 24-28, 1949

3 FUNCTIONS IN 1 *SIMPLE* UNIT

HUMIDIFIES

The TEG Conditioner automatically controls Relative Humidity . . . adds moisture as required.

CLEANS and FRESHENS

The TEG Conditioner removes dirt particles, pollen and other objectionable matter. Re-circulates air constantly . . . keeps it refreshing, invigorating.

STERILIZES

Tegelene (Triethylene Glycol) vapor has proved to be an effective agent in killing bacteria which cause air-borne infectious diseases. The TEG Conditioner vaporizes Triethylene Glycol into the air.

Licensed for manufacture under U.S. Patent Nos. 1,696,935; 2,356,757; 2,429,265; 2,431,389. Other Patents Pending.

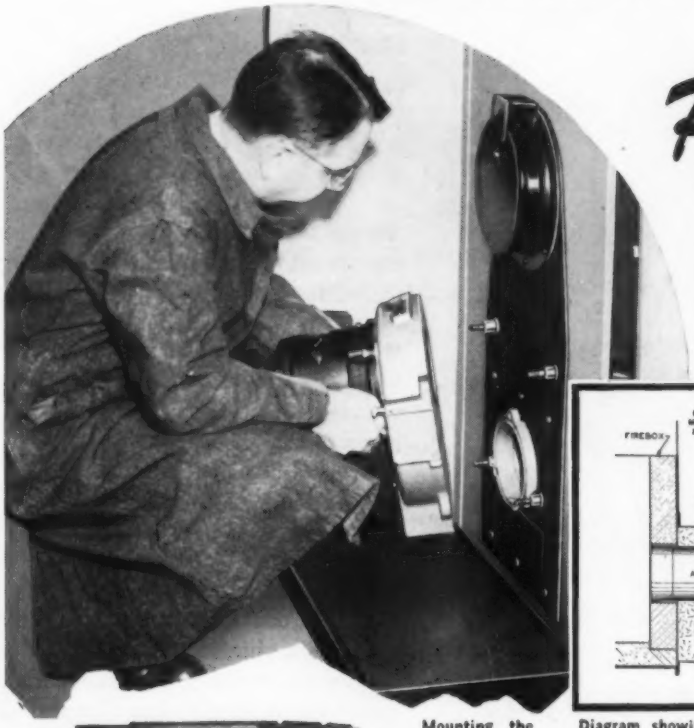
NATIONAL AIR CONDITIONING INCORPORATED

JOHNSTOWN, PENNSYLVANIA

TEG CONDITIONER

"YEARS AHEAD" in INSTALLATION and SERVICING FEATURES

MONCRIEF'S NEW *Plate Mounted* Oil Burner



Mounting the Burner Chassis to the 4 Positioning Studs.

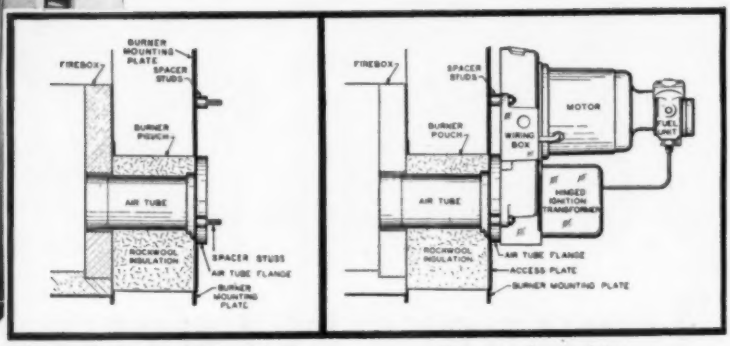
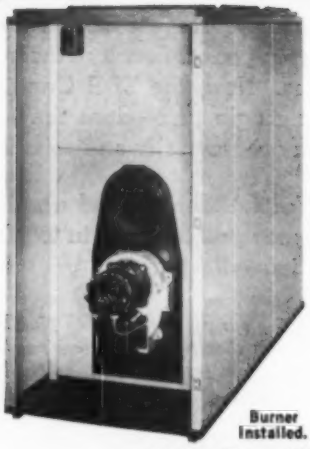


Diagram showing installation of Firebox—Air Tube—Burner Mounting Plate.

Diagram of complete Installation.



Burner Installed.

Now it's ready for the heating trade. The oil burner that affords such revolutionary, outstanding, Installation, Servicing and Inspection features which were never until now available. Here's a unit that can't be installed wrong because . . .

A burner mounting plate with four large spacer studs that hold and also locate the complete burner chassis, insures correct installation or replacement if servicing should be necessary.

A burner that is so unusually easy to service or inspect because all parts are so readily accessible.

A burner chassis that can be removed bodily without disturbing air tube or firebox.

A burner that gives clean combustion with any commercial grade #3 fuel oil.

Write Now for Complete Information

THE HENRY FURNACE COMPANY

Medina, Ohio

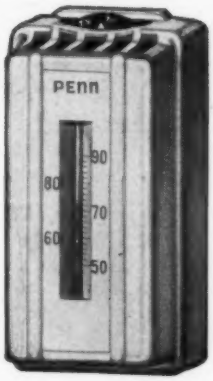
HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1895 — FURNACE PIPE AND FITTINGS

EXTRA PROFITS

FOR YOU IN THIS FUEL SAVING CLOCK



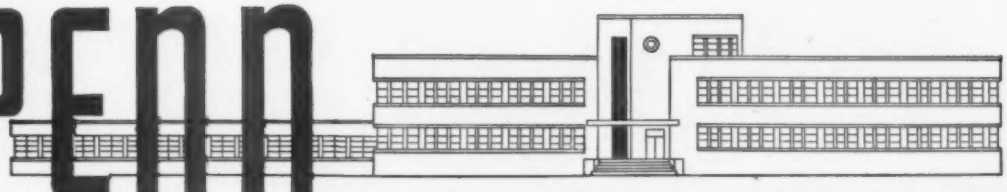
DAYTIME COMFORT • • NIGHT ECONOMY



Sell Penn Tem-Clock *now*—help your customers save fuel and help yourself to extra profits. This handsome electric clock may be mounted in any room, where a dependable time-piece is wanted, *regardless of thermostat location.* Tem-Clock automatically sets back temperature at night, restores it to comfort level in the morning. Time settings are easily made and quickly changed as desired by externally-mounted dials.

Penn's heat anticipating thermostat holds temperatures to selected levels, avoids "cold 70" as well as wasteful over-runs. Here is a "team" that provides maximum heating comfort and economy—that *saves* money for customers, *makes* money for you. For details see your wholesaler or write **Penn Electric Switch Co., Goshen, Indiana.** Export Division: 13 E. 40th St., New York 16, U.S.A. In Canada: Penn Controls Ltd., Toronto, Ontario.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

look-no hands!



this is your heating superintendent when you heat with Dravo Heaters

It's an *automatic* fireman who goes on the job at the flip of a switch for the Sanatex Company of Chicago. It cuts operational and maintenance expense to the bone and solves what had appeared to be an expensive heating problem for this processor of wiping cloths.

Not only is an attendant unnecessary—boiler-room and ductwork expense was eliminated, too, by installation of a Dravo *Counterflo* Heater. Centered along the east wall, the Dravo *Counterflo* Heater is entirely self-contained —requiring only power and fuel lines and a small vent stack. Its 1,000,000 BTU output is directed slightly over the heads of the workers to blanket 10,000 square feet of unbroken plant area with draft-free warm air. Cold corners and excessive roof heat loss are eliminated. During summer months, a touch of the selector switch converts the Dravo *Counterflo* Heater immediately into a powerful air-circulating unit.

Dravo *Counterflo* Heaters are available in sizes ranging from 400,000 to 2,000,000 BTU output. Equally efficient with oil or gas and with or without ductwork, they can be floor-installed, wall-hung or roof-hung. Write for Bulletin ID-516. Heating Section, Dravo Corporation, Dravo Building, Pittsburgh 22, Pennsylvania.



According to Mr. Schulman, President of Sanatex Company, the Dravo *Counterflo* Heater "is the best equipment we ever had. Delivery of heat is virtually instantaneous when the unit goes into action—an important fuel-saving feature which eliminates the need for anticipating cold spells or keeping the heater in operation when the plant is closed."

PITTSBURGH · CLEVELAND
PHILADELPHIA · DETROIT
NEW YORK · CHICAGO
ATLANTA · BOSTON

DRAVO

Dravo also manufactures the *DRAVO CRANE CAB COOLER* for air conditioning hot-metal crane cabs.

DRAVO CORPORATION

Sales Representatives in Principal Cities

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NIAGARA

Presents America's Newest and Finest

16 GAGE FOOT SHEAR

Featuring

- Capacity greater than ever before
- Welded steel strength and rigidity
- Formed steel throughout
- Automatic holddown
- Heavy duty bronze ways
- Clean straight cuts
- Easy operation — lively action
- Portable
- 30, 36 and 42" cutting lengths



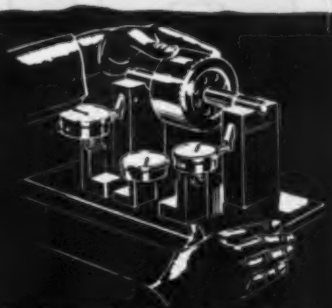
NIAGARA MACHINE & TOOL WORKS • BUFFALO 11, N. Y.

DISTRICT OFFICES: NEW YORK, CLEVELAND, DETROIT

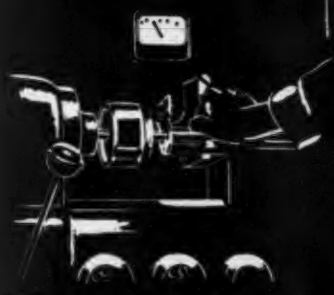
Here's Reliability



Exclusive stator tester checks performance of windings.



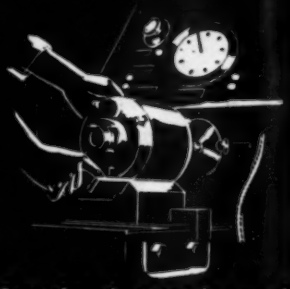
All along the line, inspectors precision-check motor parts.



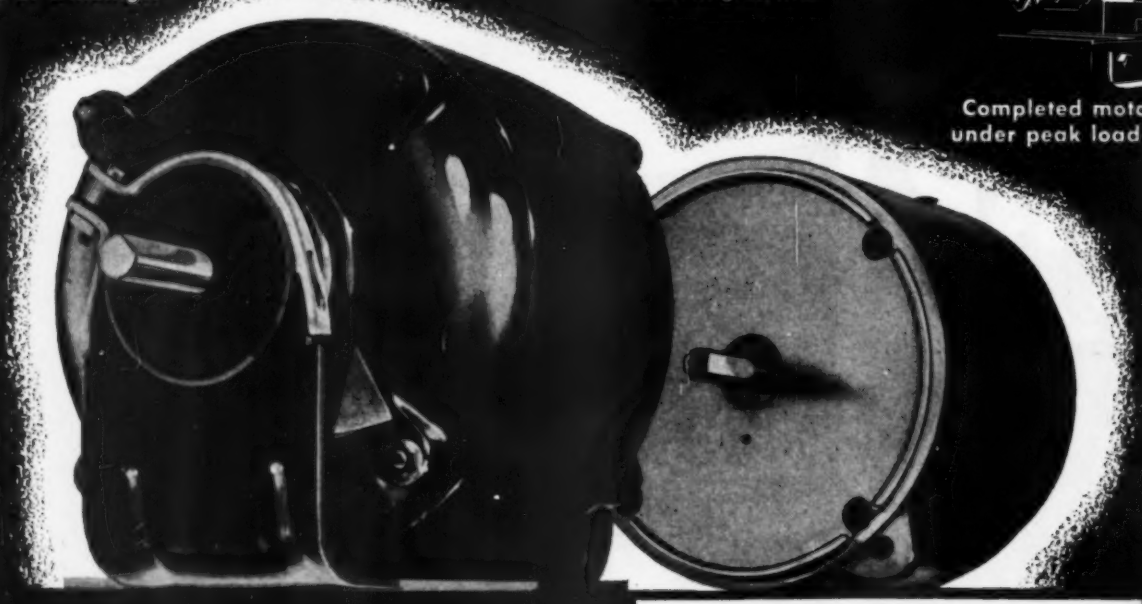
Special machine double-checks starting switch.



Run-in proving ground.. automatic high-voltage ground test.



Completed motor is tested under peak load conditions



J & H Blower Motor

J & H Oil Burner Motor

Boost your sales with JACK & HEINTZ Better electric motors

BACKED BY COAST-TO-COAST SERVICE



Electric Motors



Ball Bearings



Refrigeration Compressors



Eisemann Magnetos

The staying power of the J & H Motor is no accident . . . it is the result of specialized engineering skill, mass-precision "know-how" and *uncompromising tests*. Each part is first checked thoroughly to highest standards . . . then the completed motor passes a series of gruelling performance tests with improved and exclusive scientific instruments. *Extra care* like this pays off, as evidenced by the *time-proven performance* of more than a million J & H Motors powering heating equipment, machinery and home appliances. J & H puts new punch into your sales efforts. Write for full information on the J & H Motor Franchise for your area.



Aircraft Starters



Aircraft Generators

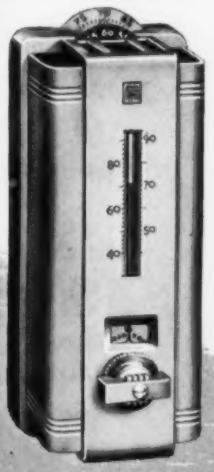


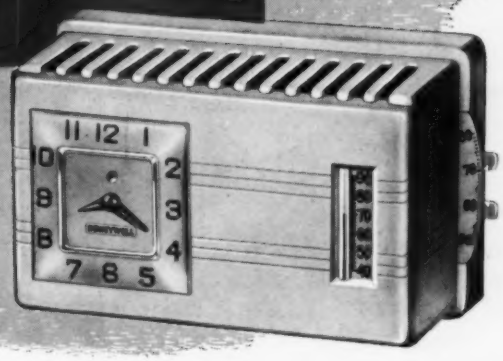
Aircraft Inverters

JACK & HEINTZ J&H PRECISION INDUSTRIES, INC., *Cleveland 1, Ohio*

Tell your Customers..

"You're paying for it anyway, you might as well enjoy the added Comfort and Convenience"





SELL HONEYWELL

Clock THERMOSTATS



There's no excuse for a manual thermostat. When your customers realize that fuel savings will pay for Chronotherm—sales resistance is nil. So tell them that they are paying for a clock thermostat, through wasted fuel anyway, and that they might as well enjoy the added comfort and convenience of Chronotherm.

Every day the proportion of clock thermostats sold is growing. When you sell Honeywell clock thermostats, *you* gain in three ways—first, satisfied customers; second, greater profit; third, less sales resistance.

Remember, Honeywell's Chronotherm is the finest electric clock thermostat ever built. Sell the standard Chronotherm for all new installations. Sell the sensational new "Plug-In" Chronotherm to replace manual thermostats—a tremendous market in which Honeywell's hard-hitting national advertising is creating a ready-made demand. And to meet the demand of limited budgets, sell the Da-Nite Acratherm, hand-set at night with automatic morning pickup.

Write today for displays, direct mail and promotional material. Address Minneapolis-Honeywell, Minneapolis 8, Minnesota . . . In Canada: Leaside, Toronto 17, Ontario.

MINNEAPOLIS **Honeywell**

CONTROL SYSTEMS

73 Branches from Coast to Coast with Subsidiary Companies in Toronto • London • Stockholm • Amsterdam • Brussels • Zurich • Mexico City

FEATURES:

Full pressure any point in the stroke

•

Infinitely-variable stroke length

•

Quick stroke adjustment

•

Full, instantaneous ram control

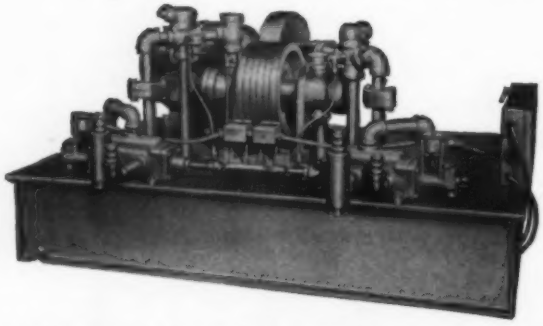


PACIFIC *Hydraulic* PRESS BRAKE

SERIES 150 Speeds Sheet Metal Shop Production

Latest in the "PACIFIC" line, this fast-acting 150-ton brake has a capacity of ¼"x10', an overall die length of 12', and clear opening of 10'-2" between housing.

The unit shown above is owned by General Engineering & Drydock Corporation and is installed in their San Francisco sheet-metal shop. Forming operations of virtually every type are performed on the press. Ease of set-up, the infinitely-variable and the instantly-adjustable stroke length are PACIFIC features of particular importance to this shop with its wide variety of work.



POWER is supplied by this simple, compact, "packaged" unit which may be mounted in a pit below floor level, leaving a clear working area on both sides of the blade. No gears, clutches or shafts are required on the press.

SERIES 150 Brakes are made in 6', 8', 10', 12', and 14' die length and in capacities ranging from ¼"x6' to ¼"x12'. Standard throat depth is 8".

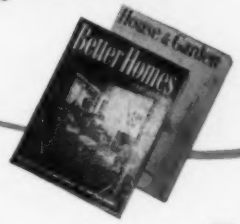
Write or wire for complete data on PACIFIC Hydraulic Press Brakes. The full line includes 26 models with capacities ranging from 12 ga. x 6' to 1"x14'... and with overall die lengths to 22'. Larger units may be built to your requirements.

PACIFIC INDUSTRIAL MANUFACTURING CO.

848 Forty-Ninth Avenue • Oakland 1, California



HERE'S A LIFT FOR MID-WINTER PROFITS!



This ad in January issues of BETTER HOMES & GARDENS and HOUSE & GARDEN reaches out to the more than 2½ million owners of modern warm-air furnaces—reminds them that it's time to replace dirt-clogged filters.

Cash in on this advertising! Use it to sell your customers on replacing with new DUST-STOP Air Filters. Free selling helps can make it easy. In addition to the profit on the filters, you'll get *extra* profits from the service business that replacements often bring to you. Owens-Corning Fiberglas Corporation, Dept. 930, Toledo 1, Ohio.

In Canada: Fiberglas Canada Ltd., Toronto, Ontario

FREE TIE-IN SALES AIDS available soon.
Ask your DUST-STOP distributor.

DUST STOP* AIR FILTERS
a FIBERGLAS product*

*T. M. REG. U. S. PAT. OFF.

DUST-STOP is the trade-mark of Owens-Corning Fiberglas Corporation for impingement-type air filters made of glass fibers.



Durable Ductwork

for industrial air-conditioning

A textile factory, a chemical plant and a printing establishment all present different air-conditioning problems from the engineering standpoint. But they all require rugged ductwork that will give maximum service under corrosive conditions.

Beth-Cu-Loy Galvanized Steel Sheets have the properties needed for this type of service.

First, they have the strength, rigidity and fatigue-resistance found only in steel. Second, they have high corrosion-resistance due to their copper content and their coating of Prime Western zinc. And as far as their cost is concerned Beth-Cu-Loy Galvanized Sheets are priced at little more than ordinary galvanized steel sheets.

Consider these points of superiority in Beth-Cu-Loy. They give greater customer satisfaction and help create the goodwill that builds business for the future.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

Beth-Cu-Loy Galvanized Sheets

BETHLEHEM STEEL

HAPPY DAYS ARE HERE AGAIN!

YOU CAN SCOOP THE MARKET NOW

WITH TODAY'S MOST TALKED-ABOUT OIL BURNER



LOOK!

1. **Burns low grade oil**
2. **Saves oil because over-sizing is not necessary**
3. **Ends usual service troubles**

THE NEW WINKLER LP*

***LOW PRESSURE**

BURNS AS LITTLE AS ½ GPH

The utterly different and sensational performance of the new Winkler LP* means new life—immediate business—big profits for oil burner dealers! Opens up a huge market of not only new buyers but present owners fed-up with the high operating cost of conventional burners.

Saves in four ways

The Winkler LP* achieves its economy in four ways. It can be sized to burn as little as ½ GPH—ending over-sizing waste in the small heating plant. It saves service expense because of its utter simplicity and clog-proof nozzle. It ends inefficient short runs usual with oversized burners. It does not require highly refined, expensive oils.

Proved in the field

Pennsylvania dealer writes: "Removed 3 gallon high pressure burner and installed a Winkler LP*—cut oil consumption 65%."

From Indiana dealer: "Replaced a 1.65 gallon high pressure burner with a ¾ GPH Winkler LP*—reduced oil fill over 60%."

The Winkler LP* will make up for your losses on slow-moving conventional burners. Don't delay in getting your share of the profits—write today!

MAKE A NOTE
Booth 1337-1339
See the complete Winkler heating line at the Heating and Ventilating Exposition, Chicago, January 24 to 28.



The Winkler showroom demonstration unit proves the difference.

WINKLER

Automatic Heating Equipment

U. S. MACHINE CORPORATION, Dept. AW-6, Lebanon, Indiana

Gas-Tight Joints *made easily* with FIREITE*



Fireite goes on quickly, forms tight seal

HERE is an easily worked sealing cement—ready mixed, ready to use—which you can quickly apply to any clean surface. It air-sets or heat-sets equally well into a practically indestructible joint.

Fireite remains gas-tight against the highest temperatures as well as expansion and construction strains—especially important features on domestic oil burner and stoker installations where airtight, gas-tight joints are essential for efficient combustion.

Fireite Asbestos Furnace Cement has minimum shrinkage, does not crack, crumble or bloat. It keeps well on the bench and in the container . . . is odorless.

Use Fireite for mounting or repairing heating equipment—for setting ash pits and fire pots, doors, dampers and other places where sealing is necessary. With Fireite there is less danger of costly call-backs for re-sealing.

Write for free 4 lb. sample

Let us send you a can of Fireite Furnace Cement and a copy of folder RC-7A. Simply write giving your name and the name of your company. Address Johns-Manville, Box 290, N. Y.

JOHNS-MANVILLE JM PRODUCTS

*Reg. U. S. Pat. Off.

Johns-Manville **FIREITE** asbestos furnace cement



Silent Night . . .

. . and a warm fire waiting

Christmas has always meant warm hearts — and warm hearths. For 98 years Thatcher has been contributing to the warmth of American homes. One of the oldest names in the heating business, Thatcher has progressed steadily through the years, all the way from the time of the friendly pot-bellied stove, until today it supplies superb, dependable, modern units to answer every type of residential heating problem. That's what we want to say . . . and also, *Merry Christmas*

Thatcher
FURNACE COMPANY
Specialists in heating Since 1850

GARWOOD, NEW JERSEY



PROGRESS
ON PARADE *at the...*



Under Auspices of American Society of Heating & Ventilating Engineers.

Striking advances in equipment . . . the latest trends and practices—newest and best ways to heat, ventilate and air condition all types of commercial and public buildings, industrial plants, institutions and homes—a wealth of useful, business-building ideas—are in store for you here. Greatest display of its kind ever assembled, its informative, technically-staffed exhibits and demonstrations will afford unequalled opportunity to see and compare at one time hundreds of new and improved items from complete units to maintenance supplies—to discuss your specific plans, problems and requirements first-hand with engineering specialists. No contractor; distributor; consulting, design or sales engineer interested in keeping up-to-date with developments in these rapidly advancing fields can afford to miss this outstanding display of progress. So plan now to attend—note the date.

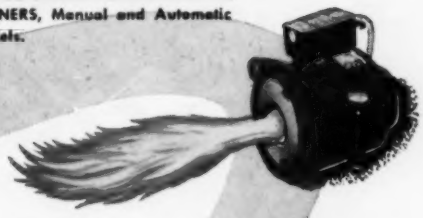
Management International Exposition Company

CONCO Means the COMPLETE Profit LINE



CONCO model M-1, M-2, M-3 OIL-FIRED WINTER AIR CONDITIONERS

CONCO-BREESE HORIZONTAL OIL BURNERS, Manual and Automatic models.



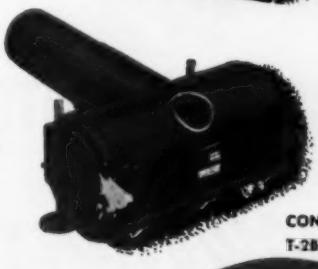
Every demand for clean, economical, automatic heat is another profit opportunity for CONCO dealers. Their complete CONCO line spans the entire range of domestic heating requirements and includes efficient, dependable heating plants for both gravity and forced warm air, hot water and steam heating systems.



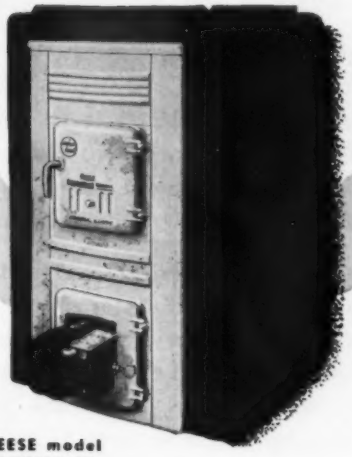
CONCO series 550 BOILER-BURNER UNITS



CONCO series 320, 700, 900 BOILER-BURNER UNITS



CONCO model T-1B, T-2B OIL BURNERS



CONCO-BREESE model SA-20CB FURNACE-BURNER UNITS



CONCO model WH-3, WH-5 OIL-FIRED WATER HEATERS

CONCO heat



CONCO ENGINEERING WORKS

MENDOTA, ILLINOIS

heat it! cool it! keep it moving!

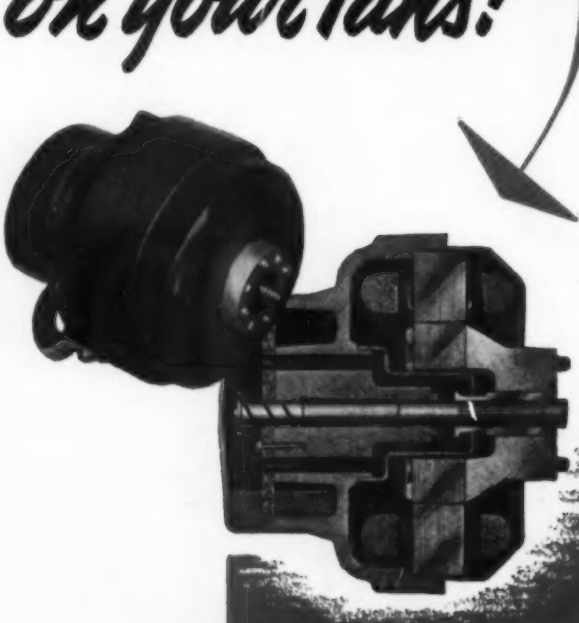
PUT GE UNIT-BEARING MOTORS *on your fans!*

You can control and direct air flow with G-E unit-bearing motors on your fans.

Because they are designed primarily for fan service, G-E unit-bearing motors have the characteristics you want—quiet operation, dependable performance, minimum maintenance, and low cost.

The unique single bearing construction gives you permanent lubrication from a lifetime, sealed oil reservoir. Oil is force-fed along the shaft to flood the bearing constantly for quiet operation. Bearing and stator housing are machined in one set-up for accurate and permanent alignment, dependable operation.

G-E unit-bearing motors are easily adapted to your mountings, use simple, stamped-metal fan blades available from the factory. For immediate delivery of these sturdy, dependable motors, call your nearest G-E sales representative. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*



GENERAL ELECTRIC

"12 Years of Profitable Business with the Airtemp Line"

—reports C. P. Meyer of Indianapolis, Ind.



The fine modern-style building of Indiana Tempered Air, Inc., 1703 East 38th St., Indianapolis, Ind.... one of the many prosperous Chrysler Airtemp dealerships across the nation.



Mr. C. P. Meyer, dynamic president of Indiana Tempered Air, Inc., who built a valuable business with Chrysler Airtemp's 4-season line of fine products.

"I have been handling the Airtemp line since 1936," Mr. Meyer writes, "and let me say that not only are the products the finest made, but the company is A-Number 1 for fair-and-square dealing, and I've been able to build a thriving business handling Chrysler Airtemp products. What's more, it's been a 4-season profit line—and that means a lot—no slump seasons—steady profits the year around."

Before you make *your* decision, get the facts on Airtemp. Learn about the "Basic 6" factors essential to a profitable dealership, and how Chrysler Airtemp gives you ALL *6*. Mail the handy coupon today, and we'll promptly send you full Franchise Agreement information—without obligation.

Chrysler Airtemp

PACKAGED AIR CONDITIONING
HEATING • COMMERCIAL REFRIGERATION

Airtemp Division of Chrysler Corporation
Dayton 1, Ohio
In Canada: Therm-O-Rite Products, Ltd., Toronto

Mail today for details

AIRTEMP DIVISION OF CHRYSLER CORPORATION
DAYTON 1, OHIO

Name_____

Address_____

Phone_____

Kind of business_____

AA 12-48



The Alnor Velometer Jr., 4" x 3" x 1½"; available in single or double range scales; double-pivoted, double-jeweled movement for increased accuracy.

Announcing the New Alnor Velometer Jr.!

Here's the *new* Alnor Velometer Jr.—Illinois Testing Laboratories' most recent perfection in precision air velocity measurement instruments. A small, portable, completely self-contained unit, the new Velometer Jr., answers a long felt need for an accurate, instantaneous direct reading instrument that is *low in cost.*

Amazingly accurate . . . easy to read, this inexpensive Velometer gives direct reading of air velocity in feet per minute *without* bothersome timing, calculations or reference to tables and charts. The new Velometer Jr., can be adapted to a score of uses when installing new work or maintaining efficient operation of established systems. Send for bulletin and prices!

Alnor PRECISION INSTRUMENTS FOR EVERY INDUSTRY

ILLINOIS TESTING LABORATORIES, INC.
Room 538, 420 N. La Salle Street, Chicago 10, Illinois

A year-end report to those who sell AMERICAN-Standard products

AMERICAN RADIATOR & Standard Sanitary CORPORATION

BESSEMER BUILDING
PITTSBURGH 22, PA.

THEODORE E. MUELLER
PRESIDENT

Throughout 1948, American-Standard has taken practical steps to make your business better and your selling easier.

We have already increased our production facilities by building two new plants, to assure a greater flow of products.

We have carried on a full and complete program of advertising and merchandising support, to help you secure your full share of the market.

And we have rigorously maintained the outstanding quality which has always distinguished American-Standard products.

You may be sure that 1949 will see not only a continuation, but an expansion of every measure which can assist you in your sale and service of American-Standard Heating Equipment.

With best wishes for a happy holiday season,

Theo. E. Mueller

President

AMERICAN-Standard
First in Heating and Plumbing

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON



In Canada too...

THEY RAISE THE ROOF FOR MORE OFFICE SPACE

IN ADDING A THIRD FLOOR to its executive office building in Toronto, the Abitibi Power & Paper Company, Limited, had also to provide a new roof.

In harmony with the best traditions of Canadian architecture, Architects Marani & Morris of Toronto selected 16-oz. Anaconda Copper with batten seam construction. Gutters, valleys and cornices are of Anaconda cornice temper copper, the job requiring a total of 9,500 pounds of metal. The firm of Heather and Little, Limited, Toronto, installed all copper work.

Light-weight, corrosion-resistance, non-flammability, low maintenance... these are practical advantages of well-designed, properly installed copper roofing. Throughout the United States and Canada, countless imposing buildings attest to the durability and desirability of sheet copper for roofing purposes.

Anaconda Copper in standard weight roofing sheets is readily obtainable from leading sheet metal supply houses.

ANACONDA

Anaconda

COPPER

THE AMERICAN BRASS COMPANY

General Offices: Waterbury 88, Connecticut

Subsidiary of Anaconda Copper Mining Company

In Canada: ANACONDA AMERICAN BRASS LTD.
New Toronto, Ont.

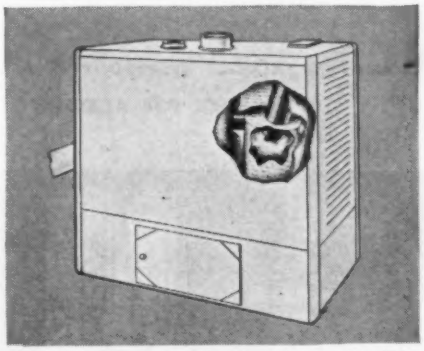
Must your customers *POLICE THE THERMOSTAT?*



Experts predict shortages of some fuels for 3 to 5 more years!



Automatic Anthracite Stokers Installed in an existing boiler or furnace and in new houses, automatic hard coal stokers deliver *plenty* of heat quickly . . . save up to 50% on fuel bills . . . eliminate fuel worries.



The Revolutionary Anthratube The Anthratube saves on fuel bills . . . its proved efficiency is over 80%. This scientifically engineered boiler-burner unit, with "Whirling Heat", and other revolutionary features, produces quicker response and superior performance than units using other types of fuel.

There are no Ifs, Ands or Buts when you sell Automatic Anthracite Heating

YOUR CUSTOMERS *can* have *plenty* of worry-free heat because there's plenty of hard coal and there is anthracite equipment to fit any heating requirement.

A whole winter's supply of anthracite can be stored easily in advance. Everyone wants this kind of security and convenience. They have *just that* when you sell automatic anthracite equipment.

Look over the two types of domestic anthracite equipment shown here. They burn the cheaper sizes of economical hard coal . . . completely automatic from bin feed to ash removal.

Write to us for more detailed information on all types of anthracite heating equipment—domestic and commercial.

ANTHRACITE INSTITUTE

101 Park Avenue • New York 17, New York

Kresky Oil Furnaces SELL EASIER!



Because Only Kresky Dealers Can Give 3-Dimension Demonstrations

To many of your customers, terms as BTU output, thermal efficiency, and other phrases are a jargon that goes over their heads. But everyone understands and appreciates the superiority of the Kresky burner because of the unique Kresky 3-dimension demonstration method which lets your customers *HEAR, SEE* and *FEEL* the advantages of the Kresky patented burner. The result . . . more sales per given number of prospects, faster sales, more profitable sales.



The Kresky *DEMONSTRATION*

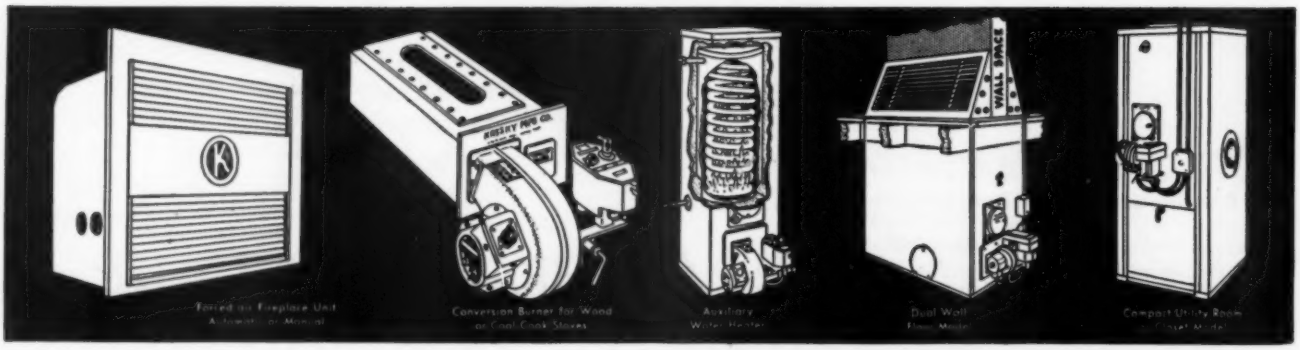
. . . makes everyone star salesmen. For sure sales results . . . for more sales with less sales cost . . . sell Kresky by 3-dimension demonstration. A letter or postcard will bring you full information on the advantages of this positive, results-producing, selling method.

Listed by Underwriters' Laboratories, Inc.

If interested in a dealership, write

KRESKY MFG. CO., INC.
320 H STREET
PETALUMA, CALIFORNIA

"ALMOST EVERYBODY IS A PROSPECT FOR A KRESKY"





PACKARD SUNLIGHT MOTORS

NOW... More Motors to supply More Users

PACKARD SUNLIGHT MOTORS
for
compressors
washing machines
power-driven
bench tools
ironers
milk separators
milking machines
furnace blowers
stokers
oil burners
water pumps
ventilators
and many other
applications

Packard Sunlight Motors, in greater numbers than ever before, now flow from our new plant . . . built to supply the ever-growing demand among the manufacturers of motor-driven appliances and equipment. Now, more manufacturers and more consumers can profit from the dependability and efficiency of motors that have become the standard of excellence in the appliance field. For product value . . . for trade acceptance . . . for customer satisfaction . . . choose Packard Sunlight Fractional Horsepower Motors for their power and prestige.

Packard
REG. U.S. PAT. OFF.
TRADE MARK

Packard Electric Division, General Motors Corporation, Warren, Ohio

DEPENDABLE APPLIANCE MOTORS FOR THIRTY-TWO YEARS

A *Century's Experience* IN COPPER

APPLIED TO YOUR PROBLEMS *today!*



Since 1848—100 years ago this year—when Curtis Grubb Hussey erected his first copper smelting furnace in the Pittsburgh District—the goal of the entire Hussey facilities has been directed toward the production of purer, finer and less expensive copper to fulfill your metalworking requirements better.

Today . . . an entire century's experience in meeting your demands and the demands of a progressive America lie behind the Hussey Copper and Brass products you use. A complete warehouse distributing organization serving all principal industrial cities has been built to serve you better and faster. Modernized, fully electrified, expanded manufacturing facilities have increased production of Hussey Copper for you in the last ten years by manyfold.

Never in Hussey's 100 year history has production been so great nor quality of product so distinctively excellent as today. Make a note to share with Hussey the benefits of 100 years' "know-how" in copper and brass. See your nearest Hussey Warehouse for service!

WAREHOUSES

- **PITTSBURGH** 2850 SECOND AVENUE
- **NEW YORK** 140 SIXTH AVENUE
- **PHILADELPHIA** 1632 FAIRMOUNT AVENUE
- **CLEVELAND** 5318 ST. CLAIR AVENUE
- **CHICAGO** 3900 N. ELSTON AVENUE
- **CINCINNATI** 424 COMMERCIAL SQUARE
- **ST. LOUIS** 1620 DELMAR BLVD.

HUSSEY Copper AND BRASS

HUSSEY

C. G. HUSSEY & CO.
(Division of Copper Range Co.)
Rolling Mills and General Offices: PITTSBURGH, PA.

Hussey Warehouses
Carry Stocks of Copper and Brass Products for Prompt Delivery

FREE (100%) FREIGHT COST

PALMAIRE pays the freight cost on one unit or carloads (within the U. S.)

We are "next door" to you in Freight Costs!

MAIL COUPON BELOW FOR DETAILS

Palmaire AUTOMATIC GAS FURNACES

"Palmaire pays the freight to any state"

AGA approved for all type gases



SUSPENDED UNIT HEATER



FORCED AIR FURNACE



HUMIDIFIER

BEAT ~~MEET~~ YOUR COMPETITION

YOU CAN MAKE MORE MONEY selling the Palmaire quality line of automatic gas heaters. Palmaire heaters are the only *completely* die formed unit heaters on the market, ornamental enough for the finest ladies ready-to-wear shop, efficient enough for the most critical plant manager.

- FULLY AUTOMATIC
- ABSOLUTELY SAFE
- WHISPER QUIET
- MODERN DESIGN
- GOOD LOOKING,
- EASILY INSTALLED
- ECONOMICAL
- EASY TO SELL

Mail Coupon Now for sales literature and details on generous cooperative advertising program. Palmaire pays up to 50% of space and radio time.

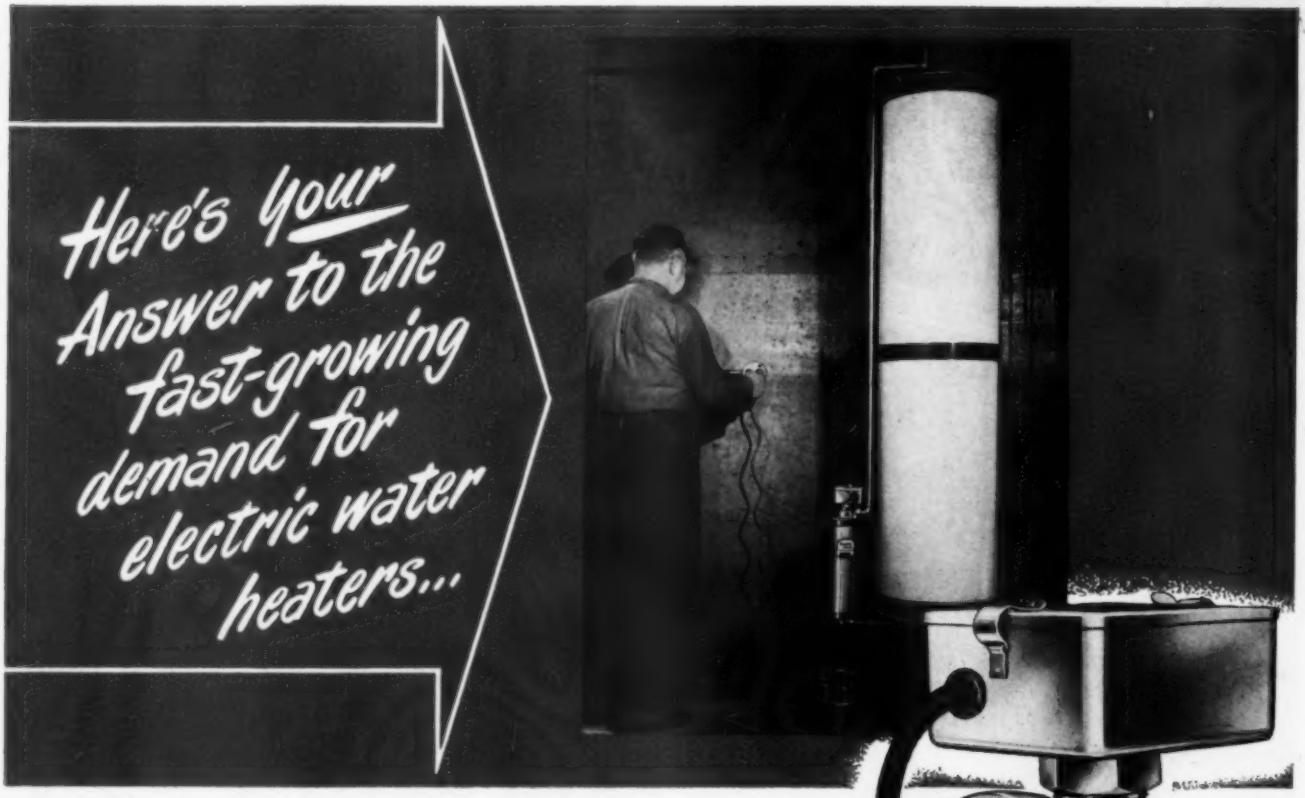
Palmer MANUFACTURING CORP. Phoenix, Ariz. Dept. A12

We are Distributors_____ Dealers_____

Please send sales details on Palmaire heaters

Name.....

Address..... City..... Zone..... State.....



CADY Plug-in ELECTRIC WATER HEATER

With this low-cost electric, water heating unit, you can get added business from customers and prospects who are in the market for this type of product. You'll find it a cinch to install . . . plugs into any wall outlet . . . no electrical work or wiring needed . . . and there are only two ½" pipes to connect to the water tank.

The Cady Heater is designed for any 5 to 30 gallon storage tank. It is clean, odorless, continuous and trouble-free. No wicks to trim, no oil tank to refill, no coal to shovel or ashes to remove. 1000 watt or 1500 watt heating elements for either 115 or 230 volt A. C. approved by Underwriters' Laboratories. Copper and brass water-ways throughout. Fiberglas insulated jacket. Positive, built-in automatic control with temperature adjustable 80° to 180°. 1000 watt element recovery rate 7½ gals. per hour, 60° F. rise. 1500 watt element, 10½ gallons per hour, 60° temperature rise. 6' plug-in cord. Size 4½" x 16½" overall.

Here's your chance to cash-in on a fast growing market. Get a heater sale as well as the job connecting storage tank pipes. Write for full particulars. THE CADY COMPANY, Dept. S, 123 Georgia Ave., Providence 5, R. I. (Subsidiary Of General Fittings Co.)



CADY
WATER HEATER

AUTOMATIC
• • •
ELECTRIC

SAVE 3 WAYS with a KRW 100-TON HYDRAULIC PRESS



Gardner Manufacturing Co. of Horicon, Wisc., uses a 100-Ton KRW Hydraulic Blanking and Forming Press equipped with Wales-Strippit die to do multiple punching of battery charger panels and other similar work.

KRW Hydraulic Presses offer multiple savings to every user and do better work in the bargain. Gardner Manufacturing Co. of Horicon, Wisc., says for example..."Our problem of punching sheets with multiple holes and keeping them accurate according to template has been solved with this press." Other manufacturers, after installing 100-Ton KRW Presses, say other things just as complimentary. Net of all these experiences is USERS SAVE MONEY, Reduce Costs, Make Greater Profits or, putting it another way, are able to outbid competition with better prices.

KRW Presses are highly flexible...they can be built with platen sizes up to 36" x 60", and can be gap, open or closed-end in type. Tonnage pressures can vary from 25 to 100 tons. Because they are hydraulically operated and not mechanically driven, they are quiet and vibrationless in operation. They are equipped with automatic safety and operational controls. Platens can be stopped at any point in their travel.

START SAVING NOW! MAIL COUPON TODAY!

K·R·WILSON

215 MAIN ST. · BUFFALO 3, N. Y.

K. R. WILSON, 215 Main St., Buffalo 3, N. Y.

Please quote me prices and information on following type KRW Presses. Gap ☐ Open End ☐ Closed End ☐

Tonnage Req..... Die Dimensions.....

Name.....

Address.....

City and Zone..... *State*.....

EVERY TIME YOU SELL FLUID HEAT...



This man's in there pitching for you!

FLUID HEAT'S big, wide-awake development laboratory is an invisible salesman on every call you make! It's staffed by graduate engineers of Johns Hopkins, M.I.T., Purdue, V.P.I. It keeps abreast of new trends in heating engineering . . . by participation in industry-wide planning through national engineering society memberships. It works with the best equipment money can buy. It's the source of those solid, customer-appealing sales features that put punch in your Fluid Heat selling and profits in your pocket!

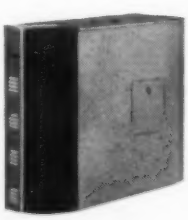
Here, along practical lines, fast-selling features like the economical "Fuel-Saver" control are developed . . . and C.A.C. (continuous air circulation) was tested for use in Fluid Heat units, to eliminate air stratification and "cold 70°." And this same lab gives you the wide variety of Fluid Heat models—husky and well-designed in construction—streamlined and colorful in appearance. All *plus* features that help you make *more* sales by satisfying the personal preferences of *more* customers!

These are just a few of the high-spot reasons why hundreds of dealers rate a Fluid Heat Franchise the *most valuable in the industry*. Write today for full details on how you can cash in on these sales features in your locality . . . with a profitable Fluid Heat Dealer Franchise! Address: FLUID HEAT OIL BURNER DIVISION, Anchor Post Products, Inc., 6720 Eastern Ave., Baltimore 24, Maryland.

fluid heat
OIL BURNER

"WORLD'S ECONOMY CHAMPION"

Manufactured by Anchor Post Products, Inc.
Baltimore 24, Md., Established 1892



Boiler Burner Units, 3 Models from 475 to 840 sq. ft. of standing hot water.



Wall Flame Rotary Burners, 2 Models with firing rates from ½ to 4½ gals. per hr.



Pressure Burners, 4 Models with firing rates from 7/10 to 12 gals. per hour.



Air-Conditioning Furnaces, 5 Models from 65,000 to 200,000 B.T.U. per hour.

Modern Heat for Modern Homes



DAY

and



NIGHT

TWO SHIFTS are WORKING

6½ Acres

of Production Floor Space are Being Used—Doing Our Best to Produce Enough Aluminum Furnace Fittings and Quality Registers to Satisfy the Needs of the Industry

CHAR-GALE Aluminum Fittings

—are made to give years of satisfaction to your customers. They are stronger, better looking, longer lasting. Feather-light, they are easier and cheaper to handle and transport. And what a break their light weight is for the installer!

CHAR-GALE Registers

Designed for the modern house. Their quiet good looks are in harmony with today's architecture and furniture; they are engineered for maximum efficiency. Char-Gale means high quality, yet modern production methods make Char-Gale quality available for the mass market.

CHAR-GALE MANUFACTURING CO.

MINNEAPOLIS **OMAHA**



Pathway to Peace

Peace is many things. It is the harmony of nations, the unity of peoples, the comfort of a home—the quiet beauty of a country church at Christmas time.

An intrinsic part of peace is industry. For in industry lie the potent seeds of progress, the hope of prosperity, the way to better living.

We always endeavor to contribute, to the best of our ability, to these ends.

To you, our customers and friends, we extend our good wishes this Christmas time. We shall appreciate your continued patience and understanding during the coming year. And, together, may we make our small contribution toward the pathway of peace.

JOSEPH T. RYERSON & SON, Inc.

RYERSON STEEL

AMERICAN ARTISAN

Business Opposes F.O.B. Pricing

AS 1948 comes to a close, the effects on business of the Supreme Court decision outlawing base pricing are becoming apparent. Although the decision was directed against practices in the cement industry, this principle of pricing became illegal throughout industry and its abolishment has caused grave concern over its ultimate effects under competitive conditions.

In challenging the base pricing system, the Federal Trade Commission argued that when a group in an industry establishes uniform prices at each delivery point a pricing pattern develops, a practice in violation of the anti-monopoly laws. Injected in the issue was the differences in mill nets, as further evidence of violation because delivered prices at distant points often required freight absorption to meet competitive prices. FTC claimed close-by customers were charged phantom freight and that these customers have an economic right to lower prices because of their advantage in location. Its recent policy sanctions both f.o.b. pricing established at each individual point of shipment and modified base pricing, so long as either does not create a pattern in an industry.

In the past, the steel industry operated under a base pricing system that created a pattern of industry-wide uniform prices at the point of delivery. The system was conceived in competition because when steel is plentiful it takes selling effort to dispose of a mill's capacity. Under competitive conditions, producers find it necessary to meet competitive prices at distant points by absorbing freight resulting in differences in mill net. Under modified base or f.o.b. pricing, a mill will be permitted to meet prices but, comments one steel official who appeared before the Senate Subcommittee on Trade Policies, buyers have the habit of passing along such spicy news and in a short time it is known to other producers and a pattern is formed. The whole action soon takes the form of a violation of the Supreme Court decision.

Disruption of historic, base pricing practices in the steel industry was greeted with an uproar by steel users who, in the opinion of FTC, needed protection from the monopolistic policies of the big steel producers. Business criticism of FTC's activities became hotter and hotter as the latter outlined its policy in support of the decision.

Base pricing had become a storm center, but as election day approached the opposition subsided because there was hope a new Congress would overrule the decision by either enacting corrective legislation or clarifying the situation on other modified forms of base pricing. Much of this was predicated on the supposition that the mood of a new administration would cause an easement of FTC's critical viewpoint toward business, and the fact that one of its Commissioners has agreed with many of its critics and favored many proposed modifications. It seemed FTC was in for congressional censure.

Since the election, these hopes for relief have faded. Current opinion believes business will continue to be subjected to at least as much government scrutiny as in the past, if not more. Whether base pricing will be modified or clarified is by no means clear and the outlook is for the FTC to continue its viewpoint that any pricing system that does not reflect actual freight from point of shipment to destination is illegal.

In recent weeks, testimony before the senate subcommittee foretells the far-reaching effects on the heating and sheet metal industry from this disruption of distribution channels and sources of supply. An Ohio sheet metal products manufacturer has already felt the effects from the increased cost of sheet steel which has forced his company out of competition in an area which represents a substantial percentage of its sales. Many witnesses have testified they have been dropped from established steel sources and are finding it impossible to re-establish themselves with a new source, even in reduced quantities.

Business opposition to f.o.b. pricing is motivated by its concern over violent adjustments that will be caused by this fundamental change in our economy. Billions of dollars have been invested in industrial plants and facilities believing common business practices are legal and morally proper. Whether one pricing system or another will resolve to the benefit of the national welfare is debatable. But whatever system is deemed proper, propriety itself calls for deliberate national expression through Congress, effectuated by congressional direction in clear unmistakable language.



Arnold Kruckman's

OBSERVERS in Washington naturally assume that the President is confirmed in his mind that the country wants him to go ahead with plans and programs on the broad social lines which he vigorously championed in his losing battles with the 80th Congress. He went before the country with the same ideas, and he was elected. This shows obviously that over-all social objectives come ahead of purely economic purposes. It means that the better life of the ultimate person will be the aim of the White House and the Hill. It requires little thought to realize that the better life of the majority means that the choicer life of the few must be subordinated to the mass. In the final analysis this differs from other socialization plans chiefly in label and degree. The Communists, at least in words, seek the better life of the majority; so do the Socialists, in England and elsewhere. There may be different ways, and different methods and different plans for achieving the final result, but the end is the same. It reminds this correspondent of something that he heard William Jennings Bryan say one day to a group composed of persons of different religions: "We may be travelling different roads to get there, but we all seek to go to Heaven and meet God." It sounded happy and reassuring when you heard the magnetic Bryan say it: you forgot for the moment that bitter, deadly, murderous battles between partisans who presumably believed in the same Heaven and the same God, during the centuries have caused the misery and destruction of millions. The methods by which the ultimate person is to get the better life, nationally as well as internationally, patently will form the basis of conflict at home and abroad.

The Legislative Program

The President will ask, and may get, powers to curb prices and to allocate scarce materials. The catch is, of course, when you curb one thing it places the pressure of demand on another, and, before long, almost everything becomes scarcer and the use must be curbed. It is supposed he will get discretionary powers, and some think he will use them sparingly. Possibly some taxes will be boosted; unquestionably corporate taxes will come first, individual taxes in the upper and upper-middle brackets next. There seems certainty in most minds that split-income levies for married couples will be continued. Appearances indicate that the public housing program will be enacted into law with slum clearance and more Federal money for the low-cost housing championed in the Taft-Ellender-Wagner bill. Most of those who fought the TEW bill desperately now comfort themselves with the thought that it all means a huge increase in the need for building materials and equipment of all kinds. It will be interesting to see how this comfort is reconciled with the much-promulgated word that building materials and building equipment can only become scarcer and scarcer, and that scarcity has hitherto held up the building program. Administration spokesmen claim that the Taft-Hartley Law must either be repealed or stringently amended to keep faith with campaign promises to labor. The most immediate result is expected to be modification of the ban on closed shops, and of injunctive powers which are now such a strong implement in the arsenal of employers. Washington thinks, however, that many of the safeguards won for employers will remain, with the approval of labor leaders. Social Security coverage is expected to be extended measurably; the base is expected to be increased from $3,000 to $4,200, the maximum taxable pay. Old age benefits are expected to go up 25 to 50 per cent. There is some feeling that the higher taxable pay base may prevent the ½ per cent increase of Social Security taxes in January. Socialized medicine is a strong probability. A certain class of government employees are to get an increase of $5,000 per year in salaries. This is politically popular with both parties. They will get it. Federal rent controls are expected to be continued after March 31 without debate. Fair Employment Practices Commission is expected to come into existence quickly, together with some of the other civil rights expectations which caused so much controversy in the Democratic Convention, and alienated some of the South from Truman.

There is little hope for governmental reorganization as proposed by the Hoover commission. The prospective budget is expected to run somewhere between $45 billion and $50 billion, with all of it coming out of raised taxes. Budget will be nearer $45 billion than the higher figure, if the President may have his way. Foreign policy,—if you may call the wavering business we now practice a policy—is to continue along familiar lines. Senator Connally, of Texas, not much liked nor respected for his qualities as a student of foreign affairs, becomes head of the extremely important Senate Foreign Affairs Committee. Preparation for war eventualities will continue actively, if quietly, on a big scale. There is every likelihood that in the end, by progressive serial appropriations, the fund for the rearmament program will reach $20 billion or better by

Washington Letter



next year. It remains to be seen when the effect of this huge purchase of war materiel will reach producers. Farm supports will be continued, possibly on a long-range flexible basis. But farm support will be continued, practically along the lines with which we are familiar. The Cabinet members who did almost everything except openly come out to oppose Truman's election naturally do not expect to remain. This includes Forrestal, regarded hitherto as the most powerful and sinister man in the government. Sawyer of Commerce already has served notice that he is quitting January 1st. Truman admires General Marshall, but apparently has reluctantly come to the conclusion that he is not as admirable as Secretary of State as he was when the directing genius of World War II. There is no doubt in most minds here that the superlative military genius of Marshall gave form and vitality to the campaign which defeated the Axis powers.

Small Business

Harry Truman as a man has a warm active sympathy with what he knows about the troubles of small business. The hitch is that neither as a man nor as President does he really know anything about the overall deep-down troubles and problems that in effect are coming perilously close to destroying small business in many of its aspects. His lack of understanding is in no way different from the absence of awareness among the members of Congress, or the officials who conduct the business of government in the departments and the various offices and agencies. In a vague, confused indifferent sort of way everybody connected with government has a perception that small business has some troubles; and they realize that small business makes up a huge segment of the economy numerically, and probably, financially. They are aware that small business potentially has great influence because it touches so many millions everywhere in this broad country either as employees, as customers, or as associates. But with the uncanny sense of the politically sensitive they also know that small business is not efficiently organized to further its cause politically or otherwise in Washington or elsewhere. It never makes a concerted, vigorous, driving, realistic, presentation of its wants. There are a number of big-sounding organizations which presumably are associations, or federations of small businessmen, some of which maintain offices in the Capital. Others periodically have conventions, or conferences, at which they turn out as featured guests a certain number of members of the Congress, and, to a lesser degree, officials of the government. What the average small business person, who attends the shows, does not realize, is that almost every one of these senators, congressmen, and officials, are chiefly unwilling scenery, who are present at the gathering because they fear to give offense to some one by an outright refusal to participate. They know less about the problems these gatherings are supposed to further than almost anyone else present. In the argot of the moment, they come to make time.

It will be recalled during the past year or so that Congress refused to supply the funds to continue the office of small business in the Department of Commerce. Congress was blamed, but it was not Congress which failed. The Department of Commerce itself was lukewarm about the office, and Congress never forces an issue of this kind unless there is considerable pressure. It should be remembered that the big interests of all kinds, labor, financial, industrial, social, are represented in Washington by the most efficient persons with the most skilled experience that can be found in the United States or elsewhere. Again, to use a term almost worn out, it is duck soup to this well-equipped and organized group to derail anything as unprotected, and naively impotent, as small business. Its organizations, being perilously something like rackets, without prestige or influence in the Capital, whose paid workers are more interested in securing support for their jobs than in the jobs themselves, mean almost less than nothing to government people, and are made to look like the little man who wasn't there by the slick, shrewd representatives of the bigs. The Senate small business committee, and the House small business committee, fold up at the end of this year. Only one of them was real, the Senate committee. It had a director who was competent, sincere, skilled, intelligent, and incorruptibly devoted to the interests of small business. But unhappily George V. Meredith has had enough, and will not go on, even though the new crowd, headed by New Deal Senator Murray of Montana, has made overtures to him to continue. Meredith, reluctantly, has come to the conclusion that until small business itself wakes up to what it must do to help itself, these committees, and other activities of government in relation to small business, will inevitably be colored chiefly by a political hue.

The fault does not lie with the government people, nor with Congress. Small business itself is at fault. Collectively, it has done nothing practical, realistic, and forceful enough to make the people who run the

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Christmas Is Profit Sharing Time

Many employers give a Christmas party for their workers and distribute bonuses on the occasion. Here is how some companies have handled this type of affair.

ERNEST W. FAIR
Bristow, Okla.

IT'S an old American custom and the employer who neglects to support the spreading of the Yuletide spirit among his employees during the Christmas season, receives only minimum co-operation from these employes for many, many weeks thereafter.

Sheet metal shop owners belonging in this classification are rare; the spirit of the industry is such that it houses few members not possessing such a spirit of goodfellowship.

But many a sheet metal shop owner has found himself at a complete loss when Christmas rolled around each year as to how to proceed in his role of Santa Claus to his employees.

It's not an easy problem to solve for there's more to it than just handing out a gift or saying "Merry Christmas" to the staff at a general meeting. To make this year's Santa Claus role an easier one for our readers we have carefully checked with a number of industry leaders on how they handled the problem in their own business in years past; searched out the ideas which were most successful.

Here, in the paragraphs to follow, are the ideas these firms have used not only in maintaining the proper Yuletide spirit but in getting the job done satisfactorily on a scale the company budget could stand.

How Much Cash Bonus?

There's no question but that a cash bonus is one of the most appreciated of all gifts, but seldom can the firm afford a large enough one to make an impression upon its employees. Experience has proved it to be better to present merchandise gifts in place of cash where budgets are very limited.

If the cash bonus is given it should be based on number of years' service and size of salary, if it is to be successful. Best formula to follow seems to be a percentage of salary for one year's service, an increase of another per cent for two years', etc., with a maximum and minimum.

A cash bonus can best be handed out by the employee's immediate superior, in a Christmas envelope and accompanied by a greeting card. When the big boss does the job there's too much expectation of "thank you's" which the average employee would rather feel than express.

Cash, it has also been found, generally means more to an employee than a check.

Savings Bonds

Many employers find savings bonds ideal as Christmas gifts for employees where an amount of such a size is involved. The bonds are cashable almost immediately, but if the employee wishes to keep the bond it can acquire added value for him.

Such bonds also permit a $25 gift for $18.75; and the impression made by the gift is thereby increased.

What Merchandise to Give?

Merchandise gifts have always been very popular and always will be, for the firm can make quantity purchases at substantial discounts and be able to give each employee more value for each dollar spent.

When times are as good as they are today the luxury item is generally most welcome; when times are tougher practical gifts earn more appreciation.

A good guide to follow is to spend a little time searching for something unusual and different, something the average employee would like to have, but would never buy for himself out of earnings because the purchase is considered too great an extravagance.

Such gifts generally receive the best welcome and are more cherished by the recipient than a practical item.

Planning a Christmas Party

The plant or office Christmas party planned by the big boss is generally a complete dud, while the one planned by someone among the employes is most often a success. Pick out the person with most imagination or one who is most popular to work on the party. Allow time off to plan it thoroughly and arrange all details.

When such parties are well planned they are generally very successful; when hastily thrown together the results are seldom worth the effort of any planning whatsoever.

Refreshments, some group activities, an exchange of gifts and complete relaxation and enjoyment of the Yuletide spirit are the essentials of a good company party.

Speeches by the "big wheel" or even superintendents should be ruled out; let the employees themselves say whatever is to be said at the company Christmas party.

Who Comes to the Party?

Should outsiders be brought into the company Christmas party? Some say yes and some say no, but the best answer seems to be that such parties, if held on a day when work has been stopped, are more successful where a single guest of each employee is the rule.

Limitations on boisterousness should be part of such party planning.

What Supplies Are Needed?

Refreshments are, of course, on the must list for any such affair, the kind and amount depending entirely on the type of party planned and the length and extent of its scope. Drinks and light foods cost little in relation to the enjoyment they give.

Music should also be provided, in the form of a rented coin machine record-player, a radio or a record player, unless the firm has a musical organization within its set-up.

A Christmas tree and Christmas decoration of the room or rooms in which the party is held should also be part of such plans. And, of course, where presents are concerned there should be a Santa Claus . . . one chosen from among the company family if possible.

A Present for the Worker or His Family?

Many firms have found that the goodwill of a worker's wife and family toward the organization that serves as his employer is as essential as that worker's own goodwill. When a man's wife knows, respects and likes the firm for which he works he is always a much better employee.

For this reason it has been found better, where merchandise gifts are presented, to select them on a basis of value and acceptability to the entire family rather than to the individual worker. Also, the presentation should be made to Mr. and Mrs. Joe Smith rather than to Joe Smith alone.

Desirous of retaining the value of the personalized gift to each employee and still secure the aforementioned end, one employer last year purchased a small gift for each man's wife and made the presentation to the man together with the company Christmas gift. The idea was very successful.

Who Else to Remember?

Spreading the Christmas spirit should not stop solely with the firm's employees. Suppliers should be remembered, for their good will is of great importance. Personal letters on Christmas stationery are all that is necessary.

Good customers of the firm need a great deal of attention, for others are vying for their goodwill with gifts, and available items which will fit into the company budget should receive a good deal of study.

Generally speaking, it has been found unwise policy to make such gift presentations to *all* customers of the firm but rather to expend the available budget in making a worthwhile presentation to the top customers of the firm whose goodwill is very important.

Check American Artisan's Classified and Service Section — Page 152 For Personnel, Business Opportunities, New & Used Equipment

Inventory—Make It Easy!

ARTHUR ROBERTS
Pompton Lakes, N. J.

In order to keep an accurate check on the worth of your business you must have reliable inventory figures. Here the author tells how to simplify this periodic task and insure the necessary accuracy.

LAST June we were in an establishment where they were taking the semi-annual inventory. The clerk had a compact, light-weight "walkie-talkie" hanging around his neck and he "miked" the count on a recording wire as he went from bin to bin in the stockroom. The apparatus consisted of a wire recorder and a microphone, the recorder containing enough wire for two hours of speech. When one spool of wire was recorded it was sent to the office girls who transcribed the information. The management said that the device speeded up the inventory count and cut the cost of taking inventory in half.

We do not suggest this device for *Indoor Comfort* dealers or sheet metal contractors, but this innovation does high-light the need for speed and an efficient system when taking the inventory. You haven't much time to finish this important task. Whether inventory is taken annually or more often a year, the work must be done quickly so as not to disrupt operations. This means that the dealer must not leave everything to the last minute. The year-end inventory is an important factor in the calculation of net profit and net worth. We have found many cases in our accounting experience where profits were badly distorted, creating wild elation because the net was too high or grave misgivings because it was too low. A subsequent check of the count reversed the figures and the emotions. The main reason for such miscalculations is lack of planning and bad organizational work. Because this phase of business management is so important, we offer these suggestions to assure speed and accuracy.

Steps in Inventory

1.—Plan your work and work your plan. The minutes you spend planning inventory will save hours when you take the actual count. Start planning at least one week ahead.

2.—Arrange everything systematically beforehand. Line up the stock so that it can be easily counted. If you list prices when you take the count, price all stock correctly with legible figures. Go over the stock carefully to make sure that there is nothing hidden in obscure places in the stockroom. Often a cleark completes a count and books it, then items turn up in hidden places and the inventory sheets must be checked to see whether they were counted.

3.—The main thing is to record the description and the number of units on hand. Pricing may be done later in the office. However, where cost prices are shown on the stock, the clerk can enter them. Do not make the extensions or total. Do this work afterward. It slows up the work to make extensions when you take the count.

4.—Use an inventory form. A looseleaf sheet is better than a card. Standardize this form so that the calculations are made easily, so that it minimizes time if the figures must be checked back for any reason. A form is shown here that may be reproduced on the typewriter. Make up the sheets in duplicate, a carbon between so that the extensions can be made by two clerks, one checking the other's figures. This saves time and assures accuracy.

5.—Organize for a speedy count. One clerk should call the items and prices, the other should list and call back as a check against error. Impress the inventory clerks with the need for accuracy and speed.

6.—Cleanliness and orderliness count for much. See that your stock and stockroom are clean and orderly before the count begins. Do this spruce-up job beforehand.

7.—Take inventory in one section at a time. List the section on the inventory sheet.

8.—Eliminate empty containers before the count is taken. Earmark those partially filled. Often inventory is taken inaccurately because the clerks assume that a container is full when it is empty or only partially filled. Make a notation on all containers that are not full so that the clerk will open them and take the proper count.

9.—Segregate obsolete items and all items that will be sold at reduced prices or scrapped, and mark them plainly so that there is no misunderstanding when the

INVENTORY FORM

Date _____ Sheet # _____

Called by _____ Entered _____ Priced by _____ Extended by _____

Section _____ Floor _____ Department _____ Examined by _____

Item	Unit price	Quantity	Extensions	Remarks
Totals				

This is the form the author mentions. It is simple yet complete.

count is taken. It is best to place such items apart from the other goods. In this way, there is no confusion afterward as to what merchandise should be disposed of at reduced prices. Then too, it enables the clerk to list them on a separate sheet so that there is always a clean-cut record of check-back.

Check Inventory Loss

The Treasury permits a deduction for loss on inventory due to deterioration of one kind or another, which compels the seller to dispose of merchandise at reduced prices or scrap it, but the former must be offered for sale within 30 days after the inventory is taken. Items sold as scrap may be written off as a loss on inventory, the difference between the scrap price received and the cost of the items. If such items are listed on the inventory sheet with reduced prices and a notation under "Remarks" giving the reason for the loss in value, the taxpayer will have little to fear if his accounts are checked by the income tax people.

10.—Do not include items for future delivery to which you have not taken title. Include any item to which you have taken title and recorded the purchase in the books, even though it is in transit or not on hand. Make a notation under "Remarks" as to its status.

Keep Your Records

11.—File your inventory sheets for future reference. The income tax auditors may want to check over your books to verify the profit reported. The inventory count is a mighty important factor here and the government watches it closely. Unless you have detailed figures, they may look rather dubiously at the value you place on inventory. The Treasury Department may place its own value on your inventory after analyzing the figures in your books and this may cost you more tax and a penalty.

12.—If possible, take inventory more than once yearly. Because of changing prices, some businessmen are taking the count quarterly. This gives them better inventory control. The only way to get an accurate inventory figure is by a physical count. Estimated inventories for the monthly profit and loss statements are just estimates, hence, the monthly net profit is also an estimate. If you want an accurate figure on net profit, you must take a physical count of the stock.

13.—A stock control system helps simplify inventory-taking. However, some *Indoor Comfort* dealers assume that because they have such a system they can dispense with inventory. Wrong. Stock control polices the movement of stock from receipt to the customer but only in units, not dollars and cents. The inventory figure must be in dollars and cents to enable you to determine your net profit. Stock control minimizes losses throughout the year and provides valuable data on inventory losses, maximum and minimum quantities on hand to aid in making purchases intelligently, minimizes "outs," prevents a tie-up of excessive capital in stock on hand, etc. It is a business control system, but it is not a substitute for inventory. Neither is a stock control record the same as perpetual inventory, which keeps a running balance of the stock in dollars so that the dealer knows at all times just what his inventory is worth. Stock control is a big help, particularly to the dealer who carries a large supply of parts and accessories.

14.—When you buy an item, put it in stock, then re-order at a higher cost-price, you may have two or more lots of the same item in stock bought at different prices. Where possible, see that each item or lot carries the price paid for it and inventory it at that price, not at the higher cost-price paid at a later date. It is poor accounting practice to anticipate profit. If you raise your cost-price to reflect the increase in the market price of a certain item, you should wait until the sale is made before entering the increased profit. This has an advantage from the income tax standpoint. If you list all purchases at the latest cost-price when you paid

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Heating Wholesaler Looks at Basing Points



J. E. Eckstein

One of the most far-reaching Supreme Court decisions in recent times is that in regard to the use of basing point pricing in the cement industry, and by implication, in all industry. J. E. Eckstein is president of the Eckstein Co., Pittsburgh, Pa., a wholesale heating equipment distributor and also a director of the National Heating Wholesalers Association. Here is his testimony before the Senate subcommittee investigating the pricing practices of industry.

THE company with which I am associated is a wholesale distributor of heating equipment and therefore a large user of steel. We cover the territory within a radius of 150 miles of Pittsburgh and employ twenty-five people. We are affected by the elimination of the basing point system because its replacement by an f.o.b. mill pricing system would result in disturbing changes.

When the recent Supreme Court decision with respect to the Cement Industry was announced, many Pittsburghers expressed concern. It was felt that because more steel is produced in Pittsburgh than is used locally, it would only be a matter of time until the steel mills would curtail operations because they would be unable to compete successfully in other markets. It was thought that unemployment would follow, and that the district would be adversely affected.

While only a short time has elapsed since the Cement decision was announced, we have been re-assured by events. It appears that instead of steel-producing mills leaving Pittsburgh, steel-using factories are moving there. It is obvious that the cost of moving a steel-using factory near its source of supply is less than the immense cost of building new steel mills close to user markets. Since the decision was announced, General Motors and the Kelsey-Hayes Wheel Corp. have started to build new manufacturing facilities, and many other large companies are looking for available sites in the Pittsburgh area.

Steel Mills Optimistic

Furthermore, the steel mills themselves appear so certain that the basing point decision will not prove harmful, and that their markets will come to the mills, that they are planning to increase their facilities. Jones & Laughlin Steel Corp. recently announced a $70 million expansion program because, as President Ben Moreel said, "The prospects for steel production needs in Pittsburgh appear better than ever."

Pittsburghers therefore are now less concerned about the Cement Industry decision than when it was announced. If we can find sites for factories and homes for the workers, the district will probably prosper. *However, from many other standpoints we are wondering whether it is wise to concentrate so much industrial activity in one area.*

Is it wise when national defense is considered, and when a few bombs might cripple so much vital production? In World War II, America was called the "Arsenal of Democracy" and Pittsburgh contributed much to that designation. Industrial areas are the prime targets of enemy bombings. Many of you probably have seen the results of such destruction in both England and Germany, and you will therefore agree that too much concentration of industry is bad in time of war.

Decentralize the Steel Industry

A sincere effort should be made to scatter the steel-producing facilities of the country, if possible, and thereby create more basing points. It is realized that raw material sources, freight rates, markets and other factors enter into such considerations. Perhaps every available site that is economically sound is already being used. However, it would appear that more basing points rather than the elimination of the basing point pricing system should be considered from the standpoint of national defense.

Years ago, all steel was sold on the "Pittsburgh plus" basis. All steel prices were quoted f.o.b. Pittsburgh no matter where the steel was made or delivered. That system was replaced by the multiple basing point system despite dire forebodings on the part of the steel industry. About twenty basing points replaced one, and *more steel was sold than before.* Perhaps twenty more basing points might be advisable.

There is one other thought that should be expressed before discussing how the basing point decision may affect the furnace business. Several concerns from whom we buy are large users of steel and are located in small towns like Coopersville, Michigan. What will be the result if these factories must leave small towns to re-locate nearer to their principal sources of supply? Are we not likely to have "ghost towns" on one hand, and over-crowded housing conditions on the other?

Now, coming back to the Cement decision and its effect upon our business. Heating equipment is usually

sold by manufacturers f.o.b. factory, freight allowed to destination. If the law on which the decision is based is not changed by Congress, the selling customs of the heating industry must necessarily be revised and all furnaces will be quoted f.o.b. factory. The present system is better because it enables a manufacturer to attain volume by selling everywhere. By dividing the total weight of the products he has shipped during a given period into the freight allowances he has had to make, he arrives at a figure that is added to all his other costs to arrive at a selling price.

How Freight Allowance Works

Under the freight allowance system, if a manufacturer sells a furnace for $100.00 f.o.b. factory freight allowed to Pittsburgh and he allows $4.00 freight, he actually receives $96.00. If he sells that same furnace to a more distant wholesaler, where he must allow $6.00 freight, his *mill net* would only be $94.00. In other words, it looks as if the Pittsburgh district is being penalized $2.00 because of the manufacturer's desire to sell in two places. Naturally we would object strenuously because we sell thousands of furnaces annually if no other considerations were involved. However we do not buy all of our requirements from one source. There are companies that must allow us more than their average freight addition because of our distance from their plant. What we save thereby compensates for what we lose to nearby sources.

The present system gives us greater latitude in buying. Competition is keen in the heating industry and the products of many manufacturers are similar. Hence the price is determined by the manufacturer who is willing to sell at the lowest figure.

Prices Must Compete

We sell the products of the leading manufacturers in the industry. Because of the steel situation, the supply of heating equipment has been inadequate during the recent past and one would think that we could have sold everything that we could purchase without trouble. However, we have found that our customers only bought heating equipment that was priced competitively. Hence, we had to keep after certain of our sources of supply to bring their prices into line, even in a period of scarcities, and the lower prices were the criterion. You will agree that economics rather than collusion was responsible for the similarity in prices.

Under the freight allowed pricing policy, heating manufacturers can sell everywhere. Hence their volume is greater and they can effect manufacturing savings that more than offset any freight differentials that some customers must pay. The $100.00 furnace, already referred to, might cost considerably more if the manufacturer could not pass on the benefits of mass production.

F.O.B. Localizes Operations

Furthermore, to compete, we could buy only from the nearest source of supply. Under an f.o.b. mill pricing system, business in any given market will naturally gravitate to the nearest factories, and competition from other sources will be affected inversely as their distance from that market. Obviously we would be limited in our purchases to nearby sources. Local manufacturers would sell to us just under what we would have to pay elsewhere plus the freight, rather than on a competitive basis. If we should happen to represent, on an exclusive basis, a manufacturer who was next door to us, we would have a considerable advantage over our less fortunate competitors, and conversely they would "sit in the driver's seat" if the situation were reversed.

There are many other advantages for small business in the retention of the basing point system. For instance, freight rates are a subject for experts. Under the current system, we need merely make certain that the freight allowed us by a source of supply is equal to what we actually pay. Under an f.o.b. factory pricing system, we would need a traffic expert in our employ and his cost could readily be more than the freight differentials we now must pay. The manufacturer, with his greater volume, can more readily absorb the cost of a traffic department.

Can't Charge More

Again, as wholesalers, we could not sell our products in any district other than Pittsburgh, if we were permitted no flexibility. To be specific, our selling prices are usually established by our sources of supply. They are the same everywhere. We would therefore find it difficult to sell at higher prices because of our wanting to add an average freight allowance. It is not profitable to allow freight on all sales, and yet there are times when specific conditions such as the location of competitors make it expedient to consider such a freight allowance. Would anyone advise a distributor to refrain from making a profitable sale in an out-of-town competitor's territory if a freight allowance, that is less than the gross profit, is all that stands in the way? It is occasionally wise to absorb freight in order to meet the delivered prices of competitors more favorably situated with reference to certain markets.

We buy a great deal of raw steel in the shape of galvanized sheets for duct work, and black steel pipe for wet heat installations. Before the war, when steel was plentiful, we had a choice of several mills from whom we could buy. To be sure, the price was usually the same, but we could consider service, quality and business integrity. If the basing point system of pricing is eliminated, we will have to buy in Pittsburgh, and other considerations will be less important.

You will therefore appreciate why I believe that the basing point system of pricing should be retained because it is beneficial to business, fosters competition and is important for national defense. It has never been an unfavorable factor in our past operations.

Galvanized Sheets Rise in Price

CARNEGIE-ILLINOIS STEEL CORP., subsidiary of United States Steel, has recently announced increases in the price of galvanized sheets in accordance with a formula which ties the price of such sheets to that of zinc. The first increase announced in the price of zinc was one-half cent a pound and that caused a corresponding rise in the price of galvanized sheets of $1.25 a ton. Three weeks later zinc went up another two cents a pound and galvanized sheets were boosted $2.50 a ton to conform to the formula.

Employee Suggestions Help Cut Costs

DAVID MARKSTEIN
New Orleans, La.

The employees of any company are one of the most fruitful sources of labor-saving ideas and short-cuts. A man who has a hard job to do is likely to use all his ingenuity to make it easier on himself. A suggestion system will unearth these ideas.

DURING the past seven years, the Illinois Central Railroad has paid out almost $380,000 to employees for their ideas—and realized savings amounting to many times that figure by following suggestions from the ranks. An intensive campaign, sparked with the offer of cash rewards, for employee ideas used, brought nearly 200,000 efficient twists and gimmicks to the attention of Illinois Central's top management.

Ideas from the men, from heating company employees and workers, can cut operating cost corners and bring out new ways of doing things that wouldn't occur to the heating contractor, because he can't know every twist that individual plant workers have thought up to expedite their work. Hundreds of businesses throughout the country save millions of dollars annually by using their workers' suggestions; how can the average heating company do likewise?

Procedure for setting up a working employee-suggestion system which will bring in the bacon can be broken down into four phases: (1) securing the suggestions; (2) checking their practicability; (3) rewarding the suggestors in money or glory or both; and (4) setting up machinery for putting workable suggestions into action.

It Must Be Organized

To do the full amount of good it is capable of doing, a suggestion system can't be instituted haphazardly. It takes work and organization. But an efficient suggestion system will pay dividends in time and money far in excess of its inaugurating and operating cost.

First step is to merchandise the system in the same sales-minded way that a heating line would be pushed. It is necessary to let employees know that the system is there, then sell them thoroughly on the idea that top management is sincere in wanting their suggestions for smoother operation, and that the suggestions will be used and appreciated. To do it, every tool in the sales promotion kit has to be brought into play.

The initial step is to tell about the system at departmental meetings of all hands. A top executive should do the telling so that employees will know that their ideas are welcomed at the very top. Details of the system should be presented fully; employees must be told right off the bat why, where, when, and how to enter suggestions. Rewards which go to those entering suggestions, should be outlined.

To *keep* employees interested in sending their ideas for better operation into the top management, a selling job as completely merchandised as any other sales promotion job must be undertaken. The best tool for this is incessant publicity. Envelope stuffers put into workers' pay should stress the means by which that pay can be increased—suggestions. Posters, nailed on spots where employees pass regularly (such as the time clock) should stress the suggestion system. Companies with successful experience in operating employee suggestion systems stress the fact that these posters must be rotated regularly, lest their familiarity detract from needed attention value.

Set Up Drop Box

The regular channel through which suggestions flow must be outlined. The best way to collect them is by means of boxes, placed conspicuously about the shop, and clearly labeled "Suggestion Drop Box."

To keep the ideas coming, it is necessary to let employees know their suggestions are appreciated. One sure way of doing this is to offer a reward for suggestions which are put into use. This might be cash—the surest lure—or it might be glory, in the form of an appreciation certificate, or a public commendation. Even unused suggestions should be answered courteously. One large manufacturer whose suggestion system saves thousands of dollars annually in operating cost sends a form letter, over the president's signature, to all employees entering suggestions. This is quick, friendly, and effective.

Use Numbered Form

Many companies which have had experience with suggestion systems find that it is best to solicit unsigned ideas, since there are always certain employees who regard the set-up as a trick of the bosses. Rewarding those who sent in unsigned suggestions presented a problem to one large firm, which worked out a neat solution. The form now used is perforated and numbered. The employee writes his idea in the form's top space, tears this off, and retains the bottom stub as his "ticket." Then, if his suggestion is accepted, he brings the stub to his foreman when a winner for "number 1048" is announced, and receives his prize.

Regular forms for writing suggestions make it easier

(Please turn to page 142)

NEWS SUMMARY OF THE MONTH

SMCNA News Bulletins

RECENT BULLETINS TO MEMBERS that have been issued by the Sheet Metal Contractors Association of America have placed considerable emphasis on the importance of having the sheet metal contractor claim all work that has been awarded to the jurisdiction of the sheet metal workers. Under the new jurisdictional award system that has been set up under the Labor Management Relations Act all awards are final and if the trade which receives the award neglects to claim such work, that work may be lost permanently.

This point has been particularly emphasized in regard to the installation of steel roof decking lighter than 10 gauge. This work has been awarded to the sheet metal workers and the union has offered to cooperate in supplying men to do such work whenever a contractor requests them. It is just as important to the union as to the contractor to claim this type of work.

Another bulletin reported to the membership on the meeting of the association committee with the OIC, in Washington in regard to an allocation of sheets for the sheet metal industry. The committee was well-received but the OIC was unable to offer very much hope of any allotment to the industry. In fact, the steel producers stopped any additional allocations last month. This decision may change before the expiration of the present act.

The jobbers in the industry offered all possible cooperation to the association in this endeavor to obtain an allotment but as stated little has been accomplished, so far.

Other subjects covered in bulletins were the sheet survey concerning black market operations, the scrap drive and reports on the activities of various committees.

Housing Starts Decline Slightly in September

NEW HOME CONSTRUCTION declined slightly in September when builders started 81,000 new permanent nonfarm dwelling units, according to preliminary estimates of the Bureau of Labor Statistics, U. S. Department of Labor. This is a decline of 2,000 units from the August estimate.

Housing starts this September were 12,800 below the same month a year ago, but greater than in any other September since the middle 1920's. Homebuilding in 1948 has apparently reverted to a more normal seasonal trend, reaching a peak in the spring and early summer. This is in marked contrast with last year's performance when housing starts continued steadily upward through October. During the first 9 months of 1948, builders placed 729,500 units under construction, an increase of 113,000 units, or 18 percent, over the same period of 1947.

Stoker Sales

FACTORY SALES of mechanical coal stokers in September of this year totaled 14,157 units, an increase of 29 per cent over the 10,975 units sold in August, and 39 per cent more than the 10,206 machines sold in September of 1947, according to the latest information released by the Bureau of the Census, U. S. Department of Commerce, based on figures supplied by 70 stoker manufacturing firms, representing practically the entire output of the industry.

Stoker sales by manufacturing establishments to distributors and retail dealer outlets for the first nine months of this year totaled 66,275 units compared with 53,783 machines for the corresponding period in 1947 and 149,959 units for the first nine months in 1946.

Anthracite Institute Permanent Exhibit

PUBLIC INTEREST IN ANTHRACITE EQUIPMENT has resulted in an unusual number of visits and inquiries at the Anthracite Institute's permanent exhibit in New York. Located in the Architects Building, 101 Park Avenue, the exhibit occupies space in one of the best known and most extensive building displays in the country. Several hundred visitors, including building and heating trade specialists as well as consumers, often view the show daily. Institute heating engineers, in charge, report greatest number of inquiries currently are about stokers and the new anthratube. Indicating interest in this combination, dealer eagerness for stoker franchises is reported to be strong. Manufacturers report many actual consumer sales from exhibit leads. The Institute's permanent exhibit is equipped to help the public solve heating problems of every description under conditions obtaining today.



Exhibit described in text above.

API Convention

THE ANNUAL CONVENTION of the American Petroleum Institute was held at the Stevens Hotel in Chicago during the week of November 8th. As has been the case in recent years, much of the discussion centered on the availability of fuel oil. As a matter of fact this convention was marked by a gas vs. oil controversy.

Both William R. Boyd, institute president and John W. Boatwright, general manager of the distribution economics department of Standard Oil Company of Indiana, asserted that there is little chance of a recurrence of last winter's shortage of petroleum products. However Boatwright said kerosene and distillates may be in tight supply on the west coast where stocks of those products are 3 per cent below last year's level.

L. F. McCollum, president of Continental Oil Co., had further reassurances to make on this topic. He said: "By 1953 the availability of natural petroleum produced in the United States is estimated to reach an upper range of 7,300,000 barrels a day. That would be 2,300,000 barrels a day more than in the peak war year of 1945. Related to our population the availability for all of 1953 would be equal to almost 800 gallons per person, about 80 per cent higher than in 1941."

Mr. McCollum's predictions were based on a report by the API's committee on long-term availability of petroleum, of which he is chairman. He warned that "preposterous" assertions that the country would soon be out of oil could result in subjecting the industry to strict government control.

Gas Supply

In regard to the supply of gas for home heating, J. French Robinson, Cleveland, president of the East Ohio Gas Co., charged that the Federal Power Commission is blocking further expansion of the use of this fuel.

"The commission's insistence on fixing low rates for wholesale gas based on the original cost of oil and gas leases is what stymies an ample supply," he said.

"The government recognizes no discovery rights which enhance values, at all. One of the biggest owners of natural gas supplies, a company operating in Texas, will not sell outside the state because it doesn't want to get into the clutches of the FPC.

"We are not advocating that the powers of state public utility commissions to fix rates to consumers be disturbed.

"The only place where relief is needed is in the producing end of the business."

Mr. Robinson also stated that there are more known gas reserves than ever. Estimates put the volume at 165 to 200 trillion cubic feet, which compares with a present use of 5 to 6 trillion cubic feet a year.

The controversy arose as follows:

R. H. Hargrove, president of the Texas Eastern Transmission Corp., presented a paper at a Production Group session in which he, in part, recommended that the oil companies "should begin gradually and yet definitely to de-emphasize the household and commercial heating aspects of their marketing," and further stated, "I would say that it is in the best interests of the national economy for the oil industry to yield to the gas and coal industries some of its house and commercial heating markets, its manufactured-gas-enrichment markets, and some of its industrial markets; and further, that it serves the national economic interests for the natural gas industry to build up a stable, dependable and adequate supply and transmission system to assume those markets in addition to those it already serves; and that the cooperation of the oil industry in aiding the gas industry to secure the steel and materials necessary to build up its system thusly, and encouraging it to do so, is to be applauded as to the past and sought after as to the future."

Mr. A. E. Hess, managing director of the Oil Heat Institute, felt impelled to answer this speech of Mr. Hargrove. He said that he would classify Mr. Hargrove's speech under two categories, "First, how far can you go against public interest in selling your product" and "Second, how ridiculous can you get."

"Mr. Hess pointed out that most newspaper reports of Mr. Hargrove's speech mentioned his position as president of the Texas Eastern Transmission Corp. but failed to mention that 'this operates the Big and Little Inch gas pipelines and is, therefore, vitally interested in an increasing public demand for gas heat.'

"It seems inconceivable to me that anyone would have the temerity to recommend an arbitrary course of action with relation to how the natural resources of the people should be used in the public interest, when he is obviously merely trying to get a bigger volume for his own product."

Mass Quitting Equals Strike

A TRIAL EXAMINER for the National Labor Relations Board today held that when 114 employees out of 115 quit individually within 36 hours, it constituted a strike under the Labor Management Relations Act.

The Examiner, Arthur Leff, declared:

"The very fact of such mass quitting alone supplies persuasive evidence, sufficient in the absence of a plausible and adequate contrary explanation, to support an inference that the cessation of work was the outcome of strike or concerted action aimed at a common objective."

However, a union's responsibility for such a strike, if illegal, must be proved independently, he declared. It was the first ruling on this question under the Labor Management Relations Act.

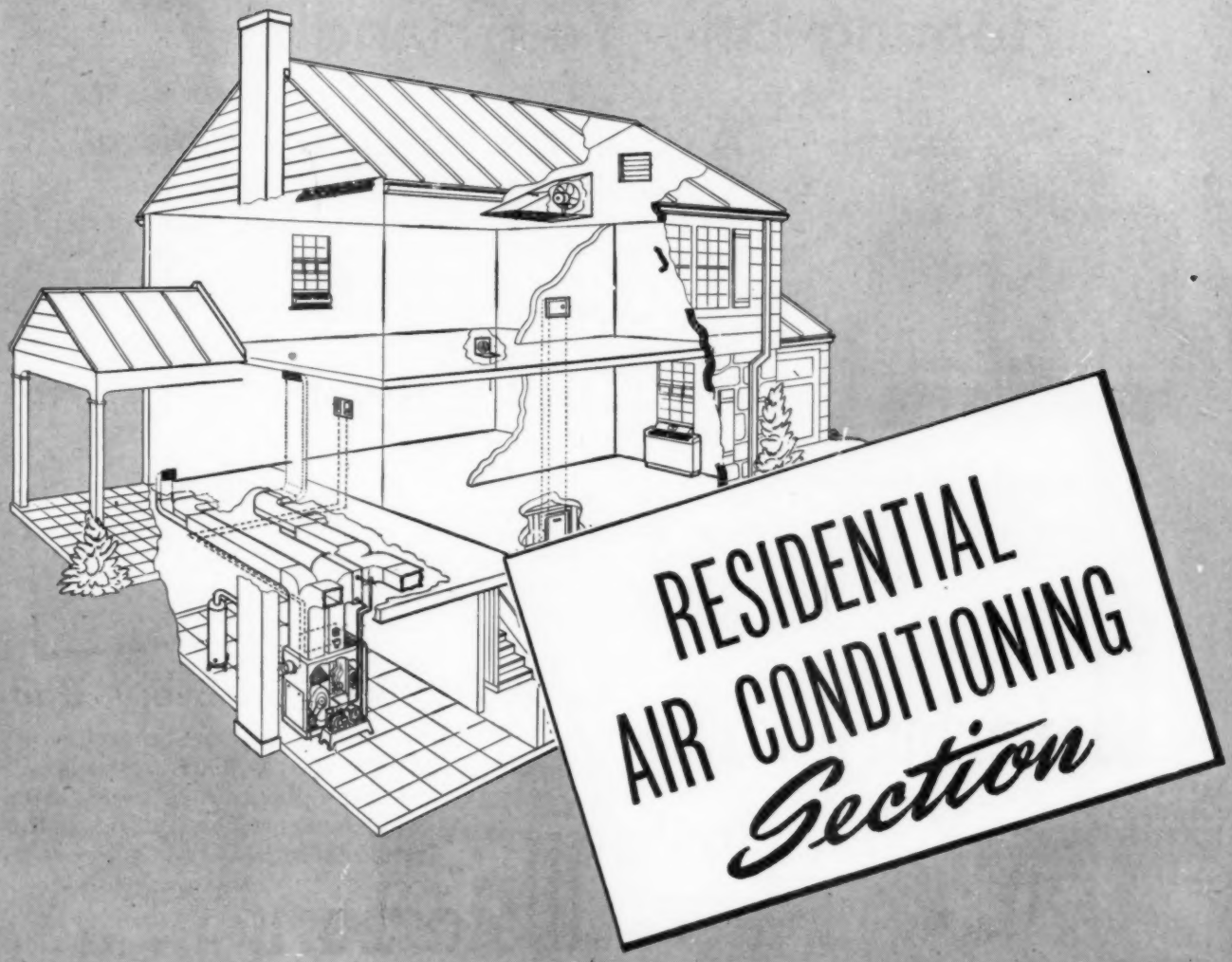
Section 501 (2) defines a strike as including "any strike or other concerted stoppage of work by employees . . ." Section 502 states: "Nor shall anything in this Act be construed to make the quitting of his labor by an individual employee an illegal act."

In accordance with these findings, the Examiner held Local 760 of the International Brotherhood of Electrical Workers (A.F.L.) guilty of conducting an illegal strike at Roane-Anderson Company at Oak Ridge, Tenn. The company maintains and operates the electrical distribution system for the townsite and military reservation there.

All but one of the 115 electricians employed by Roane-Anderson left their jobs, most of them after turning in their resignations. One remained on the job at the town hospital.

Examiner Leff held that the union inspired the work

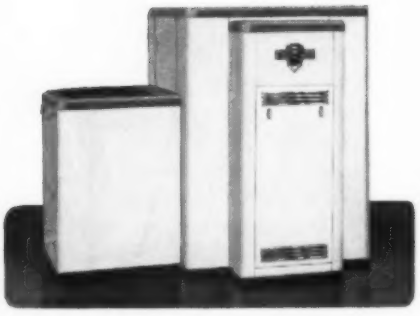
(Please turn to page 132)



RESIDENTIAL AIR CONDITIONING *Section*

INDOOR COMFORT — IN ALL SEASONS
FOR HOMES AND SMALL BUSINESSES

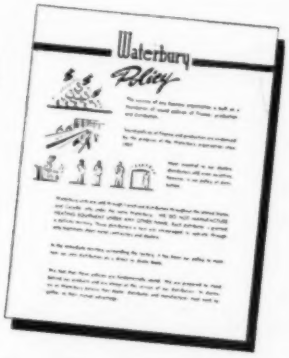
What Do **YOU** Want in the Heating Line You Handle ?



A Complete Line — *Nationally Known and Accepted*

Coal, oil or gas fired units—gravity or forced air—the right size for every home from the smallest to the largest. Nationally advertised — with established consumer acceptance.

Waterbury Has it!



A Sound Dealer Policy

A clearly stated policy toward distributors and dealers that is strictly carried out is essential as a foundation for a lasting and profitable relationship. It should be in print and available to every dealer and distributor.

Waterbury Has it!

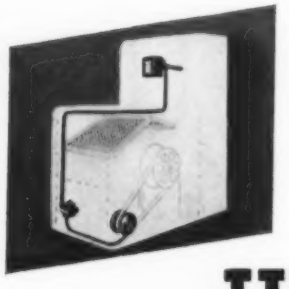
Factory Interest in Every Unit

Every distributor should have resources available to every dealer that will insure satisfactory installation and operation of every unit. The factory should have the means to give real support to this program.



Waterbury Has it!

The Answer to Drafts and "Cold 70" Waterbury *Has It!*



THE MASTER BLOWERTROL

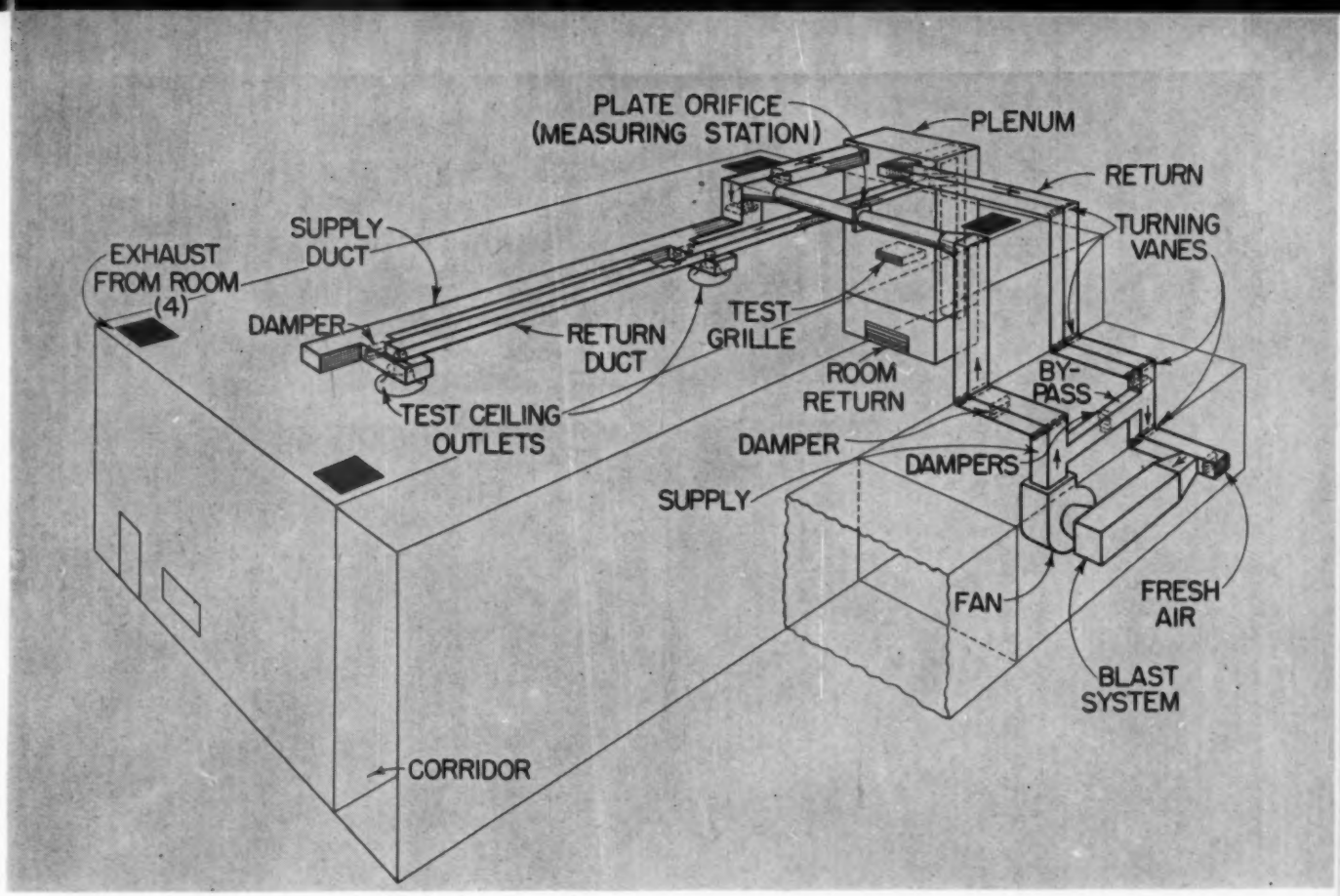
We are convinced that this is the best means of achieving true continuous blower operation—it means more satisfied customers—the end of stratification and "Cold 70." Combined with precision-engineered Waterbury Air Conditioners, it is Modern Perfection in warm-air heating.

"IT'S WHAT'S UNDER THE CASING THAT COUNTS!" and

Waterbury Has it!

THE WATERMAN-WATERBURY COMPANY

1122 Jackson St. N. E., Minneapolis, Minn.



New Laboratory Controls All Variables in Testing Air Distribution

Panel heated and cooled walls, a great variety of supply and exhaust methods, 30 tons of cooling capacity for providing conditioned air, and complete controls and instrumentation are important features of this new air distribution laboratory which provide facilities for the full-scale testing of air outlets and air distribution systems.

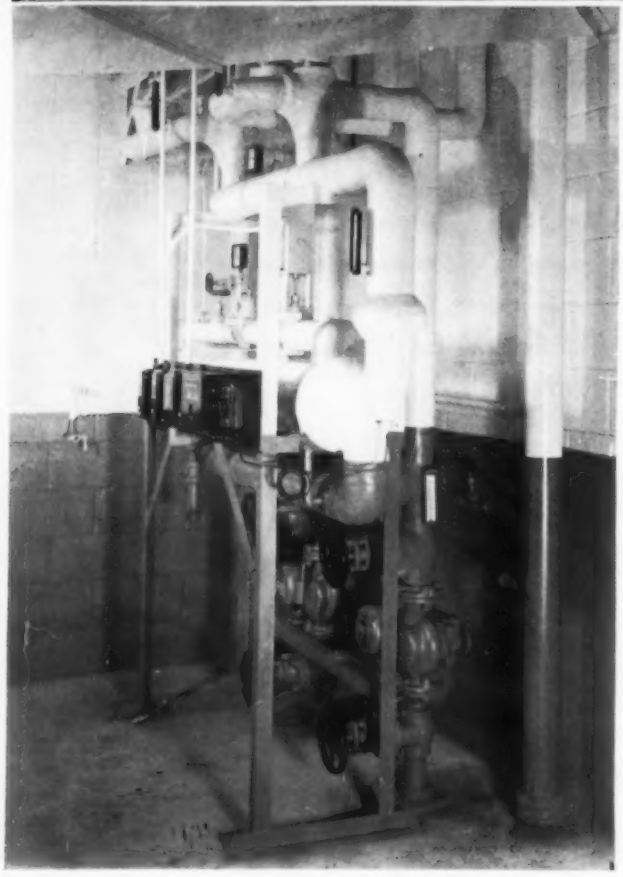
COMPLETE AND CONTROLLED FACILITIES for investigation of air streams discharged from registers, grilles, air diffusers, volume control, and directional flow devices of warm air heating, air conditioning, and ventilating systems are provided in a new laboratory designed expressly for study of air distribution at the Barber-Colman Company, Rockford, Illinois. Walter Kennedy, director of the laboratory, points to at least 14 variable factors which affect air distribution, all of which may be controlled and varied in this laboratory to simulate field air distribution problems. These factors are face velocity, air volume, noise, aspect ratio, type of grille and diffusion vane arrangement, distance of grille from floor, distance from ceiling, length of room (throw), temperature difference between room and discharge air, width of room, temperature of walls, location of return grille, type of ceiling (smooth, rough, or beamed), and obstructions (such as columns, light fixtures, furniture, etc.).

Test Area 100 by 50 Feet

The main test area of the laboratory is 5,000 sq ft; 100 ft long, 50 ft wide, and 15 ft high totaling 75,000 cu ft of controlled space. An acoustical ceiling separates the test area from a 6 ft attic space for access and alterations of the ductwork whenever necessary for different test set-ups. When data of outlet per-



This construction view shows the pipe coils for the panel heating systems for the long east and west walls of the main test space. The metal wall panels, to be ¾ in. from the pipes, have not yet been installed.



Proportioning steam valve, heat exchanger, and pumping equipment for supplying the heating coils in the main test area.

formance at lower ceiling heights are required, a false ceiling is suspended to the desired level.

Fluorescent light troughs, recessed in the acoustical ceiling so they will not obstruct air flow, run the full length of the room and provide adequate lighting at the working level. Removable panels are located strategically throughout the ceiling area for the installation of ceiling outlets to conform to different design and application problems. The center portion of one 50 ft wall is divided into removable panels to accommodate all types of registers and grilles at various heights on the sidewall. Ductwork in the attic space and a plenum behind the center portion of the end wall are supplied with temperature controlled air from the air conditioning system.

Movable partitions to simulate a specific air distribution problem can be erected within the test area.

Continuous smoke generating equipment permits observation of shape and general characteristics of air streams. This provides a double check for critical

velocity conditions downstream, being in addition to normal air stream exploration with instruments. The entire test area can be made dense with smoke in a few minutes and, since it is harmless, observations and tests can be continued with immunity. Smoke patterns are recorded with still and motion picture cameras.

Heating-Cooling System Reproduces Load

One of the most unusual and elaborate features of the main test space is the design of the panel system which either heats or cools the area, depending upon the type of test in progress. For flexibility in control, rapid change in conditions maintained, and to reproduce the influence of heating and cooling loads on a structure, prefabricated aluminum panels of low thermal capacity, each of which is 2½ by 5 ft, make up the two 100 by 15 ft walls. The backs of these panels are painted flat black to increase the rate of heat flow between the walls and the grids of piping. A ⅞ in. air space between the grids and the metal panels insures an even temperature distribution over the wall areas. This results in two panels of even temperature, each 1500 sq ft, which provide both heating and cooling to maintain required temperatures in the test room. Heating equipment and projection of air streams into the test space is avoided because either would influence air distribution characteristics of the equipment under test.



There is a chilled water storage tank in the equipment room for the water coils of the air conditioning system in order to provide a bank of cooling effect.



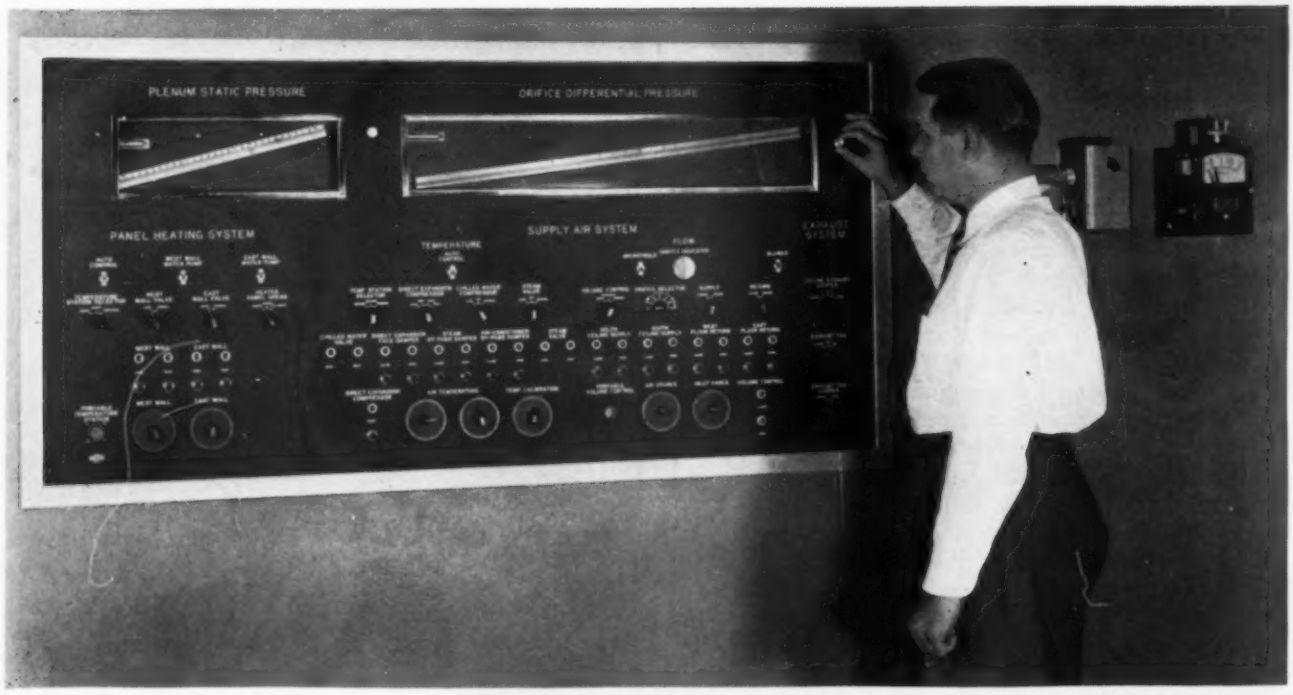
There are two outlets in the ceiling of the test area for use when investigating performance of ceiling diffusers. The fluorescent lighting is flush with the ceiling to prevent obstruction to air flow.

☆☆☆

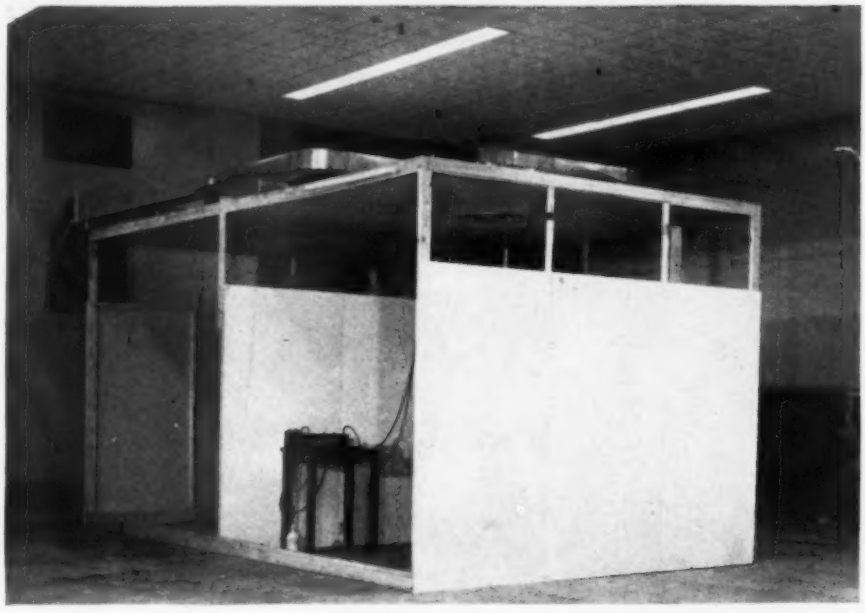
Conditioned air either above or below a pre-determined room temperature may be introduced and the heating-cooling system will pump cooled or heated water through the grids and thus offset the effects of the conditioned air supply. This assures an ideal, static temperature condition and prevents elevation or depression of dry bulb, either of which would affect air stream characteristics.

Air Conditioning System

In addition to the facilities for maintaining correct, controlled temperatures in the test room, air is supplied to air distribution devices under test by an air conditioning system capable of delivering quantities ranging from 50 to 12,000 cfm at a wide variety of temperatures, with temperature differences as high as 40 F for cooling



Centralized control of every factor—including the panel heating system, the supply air system, the exhaust system, plenum static pressure, orifice differential pressure, etc.—from this panel board in the test area simplifies the testing work and assures accuracy.



Full-scale mockups like this one of office building partitions are often used in studying methods of air distribution. This photo was taken in the main test area looking toward the plenum chamber end and shows the plywood panels in which grilles are installed as well as the return grille at the floor.

and 100 F for heating problems.

The chief components of mechanical equipment for the air conditioning system consist of steam, direct expansion, and chilled water coils, humidifier, and filters, all located in a special equipment room isolated from the main test area. The conditioned air supply system consists of a plenum, ductwork, and a volume metering device which permit directing selected volumes of air to any part of the room where a test is underway.

A central control panel in one corner of the main test space permits laboratory personnel to vary test conditions without leaving the room. The panel incorporates remote control of temperature and humidity of the air supply, temperature of the wall panels, volume of the air supply, proportions of return, exhaust, and outside air in the system, exhaust of air from the space, and other elements of the system. The panel also contains instruments which indicate and record test data which is an essential supplement to the photographic and written records of the test, and the central station provides every facility for this purpose.

Facilities Are Complete

The new air distribution laboratory was built on the roof of an existing building and facilities include a workshop, storage, office, and drafting areas. Conference and lecture rooms are equipped for projection of slides and motion pictures which visualize air flow characteristics and provide material for discussion and instruction as well as aid in the development of air distributing products.

Impressive is the realization that air distribution has become a science which recognizes the inherent advantages of proper temperature and air motion in occupied space and that its prime objective is to prepare and distribute that air for the occupant's comfort.

Research in Venting Gas Fired Equipment (III)

C. E. BLOME* and J. L. BRAY**
Purdue University

The title given above is subject to a qualification. "When no masonry chimneys are available," and the field investigation described in this series was made to find examples of what not to do in ventilating practice. This material was originally published in Engineering Bulletin No. 103 prepared by Purdue University for the American Gas Association Committee on Domestic Gas Research.

PERHAPS one of the most serious errors made by most contractors in regard to thermal losses is the practice of placing uninsulated vents above the roof and in ventilated attic spaces. The latter practice is especially detrimental when the attic floor is thoroughly insulated to protect the ceiling against thermal losses. Although the vent is protected from direct wind blasts, the temperature of the surrounding air closely approximates that of the outdoors.

A second common error is usually occasioned by the public's desire to avoid unsightly round flues within rooms. Vents are run horizontally, out through a wall, and then up the outside of the building. This practice generally results in unsatisfactory flue performance unless the flue is insulated and of low thermal capacity.

A third error is that of erecting or extending an uninsulated flue high into the air in a sincere effort to avoid down-drafts caused by exterior wind pressures. Uninsulated flues sometimes dissipate the small quantity of available heat at a rate that constantly causes condensation.

Group B. Exterior Wind Pressures. Second in frequency of occurrences of all causes investigated was that of exterior wind pressures. Judging from vent installation practices currently used in various parts of the country, either a lack of knowledge exists or ignorance of the basic laws of physics or certain esthetic desires guide the decisions for vent installation specifications.

The Research Laboratory of the Southern California Gas Company and Southern Counties Gas Company, Los Angeles, California, found in its investigation of flue cowl performance that "cowls should be installed at a horizontal distance of not less that 12 in. from a sloping roof if the pitch of the roof does not exceed 12 in. x 12 in. (45 deg slope) or at a horizontal distance of not less than 40 in. from a vertical wall or from a roof having a pitch greater than 45 deg slope 12 in. x 12 in."

A comparison of the values listed in the table of wind pressures and drafts recorded under tests clearly reveals the potential force available through wind pressure to overcome gravity drafts produced by gas fired appliances. Only when adequate consideration is given to this exterior force does one become fully conscious of the necessity of properly positioning for flue outlet. Proper positioning can take advantage of and harness wind velocities instead of allowing them to work against flue action. Wind passing a properly placed flue will add considerable force to the lifting power of the combustion gases—provided facilites have been installed to permit replacement of air within the room from which it is being exhausted. (Note: It is fully appreciated that efficiency corrections have not been applied to the above illustration inasmuch as almost an endless number of variables are involved. The *ASH&VE Guide* accepts 60 per cent efficiency for perpendicular winds and 30-35 per cent for angular winds.)

Cowl Won't Work Miracles

Somehow an idea has crept into the minds of many contractors that the installation of their favorite cowls will permit the use of short vertical flue installations parallel to walls and structures. Tests made in Los Angeles indicate the same cowl, when placed 20 in. from a vertical panel with a horizontal wind blowing at 20 m.p.h., would exhaust only 64 per cent of the normal flue capacity without a cowl in still air. A 20 mph wind blowing at an angle of 22½ deg above horizontal exhausted only 88 per cent of the normal, while a 20 mph wind directed at 22½ deg downward exhausted only 75 percent of the normal. When a horizontal roof panel was inserted 8½ in. below the cowl, the efficiency dropped to 0 per cent at 16 in. and at 24 in. away from the vertical wall.

Apparently adequate space is required for static air pressure to dissipate itself before the velocity pressure

*—*Research Associate*

**—*Professor, Metallurgical Engr.*







Fig. 1. Three in. 28 gauge galvanized metal uninsulated flue extended 14 ft above roof line to avoid down drafts caused by winds. Average minimum winter temperature in this area is 7 F. It was reported that considerable difficulty was experienced with this installation.

Fig. 2. Upper two flues are from floor furnace and water heater. This is typical of installation practice in some parts of the country. This type of flue is particularly subject to back drafts caused by wind pressure.

Fig. 3. A typical example of an attempt to hide a round, exposed flue. Vent could have been joined into masonry flue had thimble been provided.

becomes effective on this type of cowl.

Group C. Frictional Resistances. A large percentage of present-day troubles from this source could be entirely eliminated by proper planning on the part of the designer. Certain basic principles regarding placement of heating equipment must be followed in order to obtain minimum comfort conditions. So also must certain basic principles be followed in order to obtain minimum standards of venting. When the minimum requirements of both are employed, satisfactory results are obtained.

Houses Built for Beauty

Too frequently architects and designers are artists at heart, and for the sake of esthetic values design and build houses for beauty, completely ignoring the engineering principles effecting utility. The practice of placing unprotected chimneys on outside walls with three sides exposed to the weather, and fed by long lateral vents is not only a most common error but is one of the most costly.

Until such time as architects and building contractors carefully execute the requirements for good venting, frictional resistance and condensation within vents and flues will no doubt continue to be a common occurrence.

Group D. Negative Interior Pressures. This contributing cause to vent failures has three distinct phases. Phase 1 concerns only installations where two flues are present; phase 2 covers all vents and flue installations where the position of the flue, in relation to roof construction, etc., is such that wind velocity supplements the natural lifting force of the hot combustion gases. Phase 3 covers the indiscriminate use of exhaust fans. All phases apply to installations where no provision for replacement air from the exterior has been provided and crack length or opening is insufficient to provide adequate air replacement.

Phase 1. It is a rather common practice in many areas to place a furnace in the center or at one end of a basement and a water heater in another location. Each is vented into a separate flue. This practice is favored by those who believe it most advantageous to use short distribution systems for hot water. While this practice has some points in its favor, it should not be applied at the expense of satisfactorily venting an appliance. The usual sequence of events is about as follows: A hot water heater thermostat often calls for heat, simultaneously with furnace operation. Since a furnace generally has a greater heating capacity than a water heater, the volume and temperature of the flue gases is greater. The lifting capactiy of its flue gases is therefore greater. As soon as the pressure inside the room falls below atmospheric and if no other supply of air is furnished, the flow of gases in the water heater vent immediately reverses itself, and the vent becomes a fresh air intake.

Phase 2. Frequently an even more annoying condition exists with respect to automatic water heaters. Let us assume a furnace is operating at maximum input but a water heater is not operating. A 15 mph wind adds its lifting force to the natural draft of combustion gases up the furnace flue. The water heater

vent will operate as a fresh air intake as soon as the room pressure falls below atmospheric. The velocity of air when entering through the vent has often been sufficient to blow out the water heater pilot light. This condition is a constant source of service call expense to most gas utilities.

Another condition, which will affect the flues of gas fired appliances, may be created in houses of reasonably tight construction. A wind blowing over the top of a flue may create, momentarily, a draft greatly in excess of the normal draft of the flue. For example, with a wind of 23 mph negative pressures within the house have been observed as high as 0.17 in. H_2O. Frequently the basement openings may be on the lee side of the house or shielded by other structures when on the windward side. When the wind blows in gusts, the direction of the flow in the vent pipe may be reversed momentarily, and only when pressures are again equalized can the combustion gases resume their normal travel up the flue.

Phase 3. The earnest desire of homeowners to remove cooking odors, grease particles, etc., from kitchens, coupled with forceful advertising campaigns on the part of fan manufacturers has led to the indiscriminate use of exhaust fans without giving consideration to a source of supply of replacement air.

Too many persons attempt to turn their homes into vacuum bottles. They have neglected to remember that "nature abhors a vacuum"—and that a constant effort at equalization takes place. One cannot remove more air than is brought in, nor is it possible to bring in more air than is permitted to escape without creating conditions conducive to the beginnings of this equalization process.

When small, well-constructed homes are thoroughly weatherstripped, storm sashed, etc., crack area is frequently insufficient to permit replacement air to infiltrate as rapidly as air is exhausted mechanically. It is unreasonable to expect air to overcome the resistance of tiny cracks when a direct opening to the exterior is available in the form of a large vent.

Unless a fresh-air inlet is provided to supply replacement air, the flow of gas in vents soon reverses its direction when an exhaust fan is operated. Restaurants frequently experience this difficulty.

Group E. Insufficient Flue Capacity. Vent and flue sizing is generally adequate. Considerable engineering data are available on this point in the *Gas Engineer's Handbook*, etc. A.G.A. requirements and codes govern most practices. However, there are those who, either through ignorance or through intent, do not comply. It is the exception, and a rare one at that, to see an undersized vent attached to an appliance. The common error is to connect two appliances into the same sized vent and flue, thereby making it undersized.

In one area (west coast) and peculiar to that area alone, the practice of restricting the diameter of the flue at the discharge end is frequently employed. A 6 in. flue is frequently reduced to a 3 in. or 4 in. diameter flue. No adequate explanation was given for the use of this practice.

Group F. Unvented Appliances. As previously mentioned, the percentage figure of 4.27 per cent belies the real truth concerning unvented appliances. Even







Fig. 4. This is an illustration of two flue outlets that were installed too close to a vertical wall.

Fig. 5. In this case, rain shields were placed over the rectangular vents resulting in a restriction of the opening. The total cross-sectional area of the opening should never be less than the cross-sectional area of the vent.

Fig. 6. Separate flues for space heater and water heater are shown above in a house that has been well protected with storm sash and weatherstripping. As soon as inside pressure falls below atmospheric fresh air enters the uninsulated water heater flue to replace air passing out insulated space heater flue.

though unvented appliances can be found, it must be said in all fairness that they are the exception rather than the rule in some areas. It was exceedingly difficult to find a lone example of unvented appliances for purposes of the field investigation in several localities. This was due no doubt to the splendid integrity and cooperative effort between local enforcement officers and utility employees.

Vented appliances are now becoming standard practice in many areas where unvented appliances did predominate. Two influencing factors are: (1) minimum F.H.A. construction requirements and (2) an earnest effort on the part of utilities to influence the public's thinking about venting. Even though marked improvement has taken place, much work remains to be done.

Group G. Broken Vents and Flues. As might rightfully be expected, the cause of the smallest number of vent failures is the easiest to discover and to correct. A tolerance of broken vents can be charged only to negligence.

TABLE 2

AREA #1—EAST COAST

	Quantity	*Per Cent*
Total applicable inspection reports..	26	100.0
Reports with satisfactory vents.....	7	26.9
Reports with unsatisfactory vents...	19	73.1
Total influencing factors recorded...	32	
Satisfactory vents	7	
Factors involved in unsatisfactory vents	25	100.0
Excessive thermal losses from vents and flues	9	36.0
Frictional resistances	5	20.0
Negative interior pressures.....	3	12.0
Exterior wind pressures.....	3	12.0
Insufficient flue capacity.....	2	8.0
Unvented appliances	2	8.0
Broken vents or flues.....	1	4.0
	25	100.0

TABLE 3

AREA #2 MIDDLE WEST

	Quantity	*Per Cent*
Total applicable inspection reports..	62	100.0
Reports with satisfactory vents.....	19	30.6
Reports with unsatisfactory vents...	43	69.4
Total influencing factors recorded...	74	
Satisfactory vents	19	
Factors involved in unsatisfactory vents	55	100.0
Excessive thermal losses from vents and flues	19	34.6
Negative interior pressures.....	14	25.5
Exterior wind pressures.....	11	20.0
Frictional resistances	6	10.9
Broken vents or flues.....	2	3.6
Unvented appliances	2	3.6
Insufficient flue capacity.....	1	1.8
	55	100.0

TABLE 4

AREA #3 NORTH (Cold Climate)

	Quantity	*Per Cent*
Total applicable inspection reports..	7	100.0
Reports with satisfactory vents.....	4	57.1
Reports with unsatisfactory vents...	3	42.9
Total influencing factors recorded...	8	
Satisfactory vents	4	
Factors involved in unsatisfactory vents	4	100.0
Excessive thermal losses from vents and flues.....	1	25.0
Frictional resistances	1	25.0
Insufficient flue capacity.....	1	25.0
Exterior wind pressures.....	1	25.0
Negative interior pressures.....	0	00.0
Unvented equipment	0	00.0
Broken vents or flues.....	0	00.0
	4	100.0

TABLE 5

AREA #4 SOUTH AND SOUTHWEST

	Quantity	*Per Cent*
Total applicable inspection reports..	48	100.0
Reports with satisfactory vents.....	18	37.0
Reports with unsatisfactory vents...	30	63.0
Total influencing factors recorded...	60	
Satisfactory vents	18	
Factors involved in unsatisfactory vents	42	100.0
Exterior wind pressures.....	17	40.5
Excessive thermal losses from vents and flues	14	33.3
Frictional resistances	8	19.0
Insufficient flue capacity	1	2.4
Negative interior pressures.....	1	2.4
Unvented appliances	1	2.4
Broken vents or flues.....	0	0.0
	42	100.0

TABLE 6

AREA #5 HIGH ALTITUDE

	Quantity	*Per Cent*
Total applicable inspection reports..	6	100.0
Reports with satisfactory vents.....	1	16.7
Reports with unsatisfactory vents...	5	83.3
Total influencing factors recorded...	9	
Satisfactory vents	1	
Factors involved in unsatisfactory vents	8	100.0
Frictional resistances	4	50.0
Excessive thermal losses from vents and flues.....	2	25.0
Exterior wind pressures.....	2	25.0
Insufficient flue capacity.....	0	00.0
Negative interior pressures.....	0	00.0
Unvented appliances	0	00.0
Broken vents or flues.....	0	00.0
	8	100.0

TABLE 7

AREA #6 WEST COAST (North)

	Quantiy	Per Cent
Total applicable inspection reports..	18	100.00
Reports with satisfactory vents.....	11	61.00
Reports with unsatisfactory vents...	7	39.00
Total influencing factors recorded..	22	
Satisfactory vents	11	
Factors involved in unsatisfactory vents	11	100.00
Exterior wind pressures.....	4	36.35
Frictional resistances	4	36.35
Excessive thermal losses from vents and flues	1	9.10
Insufficient flue capacity.....	1	9.10
Negative interior pressures.....	1	9.10
Unvented appliances	0	0.00
Broken vents or flues.....	0	0.00
	11	100.00

TABLE 8

AREA #6 WEST COAST (South)

	Quantiy	Per Cent
Total applicable inspection reports..	19	100.0
Reports with satisfactory vents.....	9	47.4
Reports with unsatisfactory vents...	10	52.6
Total influencing factors recorded...	28	
Satisfactory vents	9	
Factors involved in unsatisfactory vents	19	100.0
Excessive thermal losses from vents and flues.....	6	31.6
Frictional resistances	5	26.3
Exterior wind pressures.....	3	15.8
Insufficient flue capacity.....	3	15.8
Unvented appliances	2	10.5
Negative interior pressures.....	0	00.0
Broken vents and flues.....	0	00.0
	19	100.0

(Please turn to page 136)

Supplying Heat For Winter Construction

WITH the current building boom showing no signs of slacking, it is probable that every building contractor who can reasonably do so will keep his crews working through the winter. There are many headaches entailed in following such a course of action and one of the most serious is that of providing sufficient heat for the workmen on the job. One of the most usual means of keeping the men at work is to furnish open salamanders which burn refuse or coal. Actually these devices are fire hazards and many manhours are lost when the workers huddle around them trying to get warm.

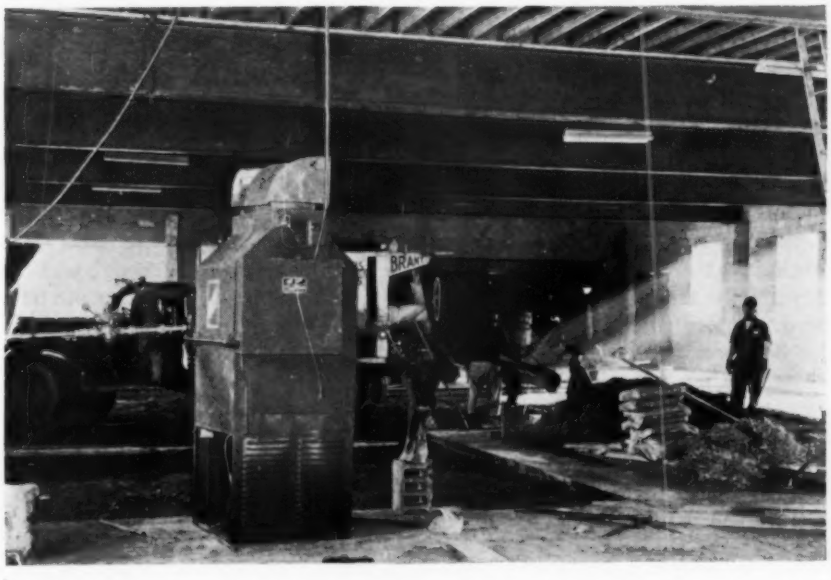
Temporary Set-up

An effective solution was recently found for this problem in the course of building an addition to the plant of the Superior Truck Body Co., Etna, Pa. The same equipment was used for temporary heat that had been selected for the permanent installation. Two 500,000 Btu, gas fired Dravo space heaters had been specified for the addition and early delivery was secured on one of them and it was set up and put into operation.

Despite the fact that no windows or doors had been installed and the roof and the walls were not insulated, the single heater maintained a temperature of 50 F when it was 18 F outside. Use of this heater made it possible to pour the concrete for 12,000 sq ft of floor area, something which could not have been done otherwise.

This outstanding performance of the heater caused a change in plans and instead of two heaters for the addition, the second will be used to replace a work-out steam system which had been heating several large paint spray booths in another section of the plant. Actually the result was a saving in equipment expenditure.

The temporary installation of this heater was easy to make since only a power line and gas line needed to be hooked up.



OPEN FOR DISCUSSION

Pattern for Three-Way Pipe

Mr. Neubecker:

I am a subscriber to AMERICAN ARTISAN. You have a pattern for a three-way pipe in the August issue that I cannot follow exactly. I have been a pattern cutter since 1916 and have some of your fine books, but you have me stumped. I would like to have you explain to me how this 8 in. branch pipe can intersect the 15 in. pipe at centers on either side. And why does this pattern have to be developed by triangulation? Is it because the top part of the 15 in. pipe shows a slight taper in Fig. 1 but does not show it in Fig. 2? Or is it not supposed to have any taper? As I see it your pattern for one-half of the 15 in. pipe has a taper to it.

One more thing, I do not see how your 8 in. pipe can fit the miter line as you show it in the semi-ellipse.

ULA M. HAIFLICH

Auburndale, Florida

• On receipt of the letter printed above, Mr. Neubecker sent the following reply to the questions brought up. —Ed.

The 8 in. branch is connected to the 15 in. pipe by the miter line drawn from M in Fig. 1. On this miter line, which is also shown by d-8 in Fig. 2, a semi-elliptical section is drawn whose height at d-5 is equal to one-half the width of the 15 in. pipe or 7½ in. Suppose we were to cut this semi-elliptical section 8-d-5 from sheet metal and set it in an upright position on the miter line in Fig. 1, then the lower half of the 8 in. branch and the upper half of the 15 in. pipe would have the same section on its joint or miter line and the girth of the pattern cuts of both branch and main pipe would be similar. Of course, this will make a taper branch whose diameter at the top would be 8 in. and the distance through M in Fig. 1 would be 15 in. and would require triangulation in its development, similar to that shown in Fig. 2.

The triangulation method shown in Fig. 2 was used to explain how the true lengths are obtained when developing the pattern for the 8 in. branch. Outside of showing the triangulation method, which must be used for developing the 8 in. branch, the 15 in. pipe could also be developed by the parallel line method.

There is no taper in the 15 in. pipe; it is the same diameter throughout. This was an error in the original drawing.

There is a taper in the pattern in Fig. 5 because the girth of the quadrant 1 to 4 in Fig. 2 is less than the girth of the semi-elliptical section 5 to 8, also shown in Fig. 2.

AMERICAN ARTISAN:

We think the way Mr. Neubecker lays out the upper part of the 8 in. branch in the August drawing is wrong. When the upper part of the 8 in. pipe (Fig. 6) fits on to XM (Fig. 1) it still is only half of an 8 in. pipe and would have to be 15 in. wide. Then when he starts off with the lower part of 8 in. pipe, 8 to d (Fig. 2) he has that 15 in. wide.

The 15 in. pattern is OK.

We feel the only way to lay out the 8 in. is by triangulation, 8 in. on small end and 15 in. where the two branches meet. Are we right or wrong?

E. F. SCHRADER

423 E. Main St.
Lebanon, Ohio

Mr. Neubecker Says:

In the August issue of AMERICAN ARTISAN the writer presented an article describing the development of a three way pipe and two readers called attention to errors in the drawings. Review has confirmed that these errors exist in the original article.

New drawings are published on these pages to show that the correct pattern for the 15 in. pipe is developed by parallel lines and the 8 in. pipe, by triangulation. The procedure for correct development is as follows:

Draw the side elevation as in Fig. 1, in this case the 8 in. pipe at an angle of 45 degrees, producing a joint or miter line 4°-1' as shown. After dividing the semi-circle of the 8 in. pipe into six equal divisions, the end view Fig. 2 may be drawn and one upper quadrant of the 15 in. pipe divided into three equal divisions. As indicated, the 8 in. pipe is tapered and the 15 in. pipe, straight.

From the intersections 1 to 4 in Fig. 2, draw the horizontal lines intersecting the miter and left end of the fitting as shown in Fig. 1. Next, project the division points from the semi-circle of the 8 in. pipe in Fig. 1, intersecting the line 5-11 at points 6° to 10°. Now draw the solid and dotted lines of Fig. 1, as shown. These solid and dotted lines represent the bases of sections to be constructed. The altitudes of the sections will equal the various heights in the semi-circles of the 8 in. and 15 in. pipes. Lines joining the altitudes become the true lengths.

For example, to find the true length of the solid line 3°-7° in Fig. 1, take this distance as a base and erect at point 3° a line equal to x-3 perpendicular to the base. At 7° erect a perpendicular line equal to 7-7°. The

Air Conditioning Pattern

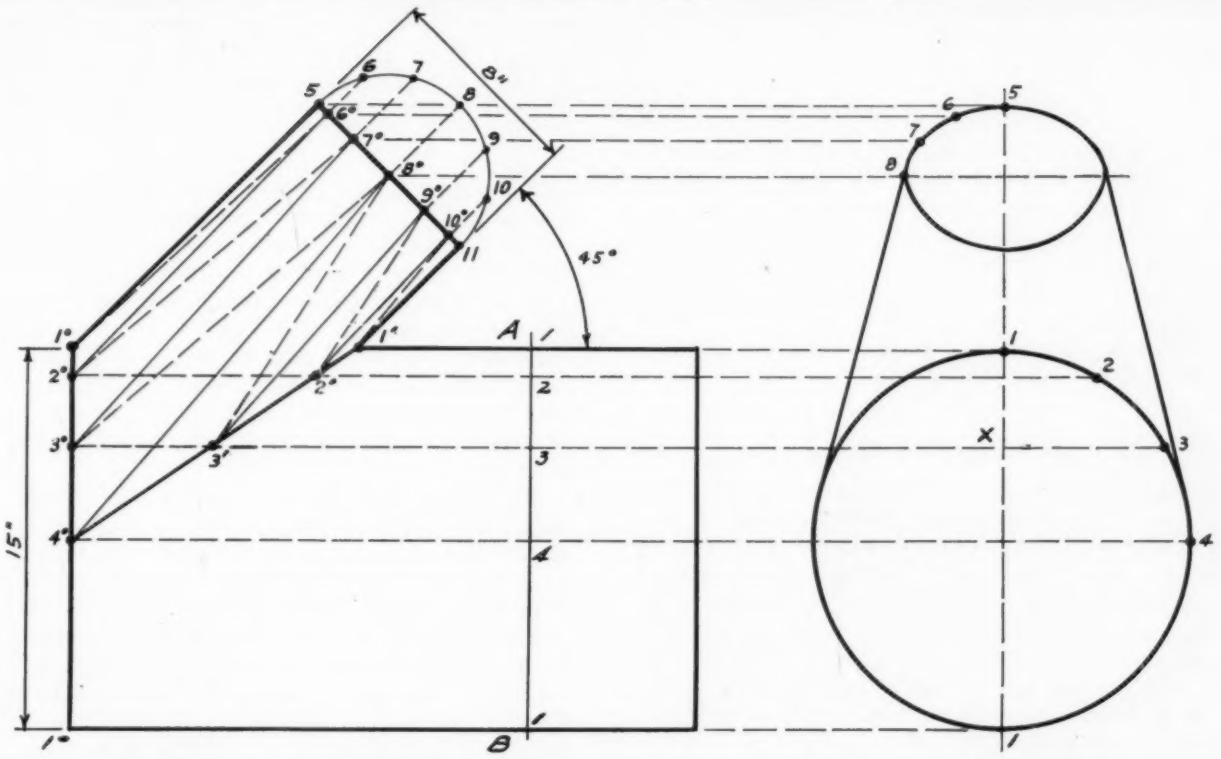


FIG. 1 SIDE ELEVATION

FIG. 2 END VIEW

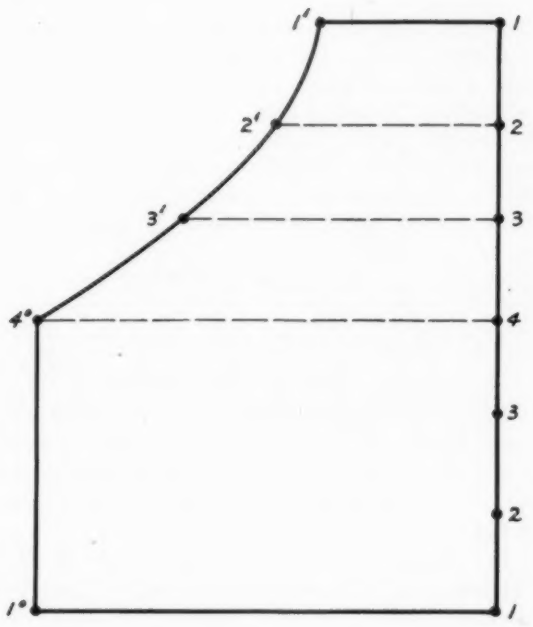


FIG. 3 ONE HALF NET PATTERN FOR 15" PIPE

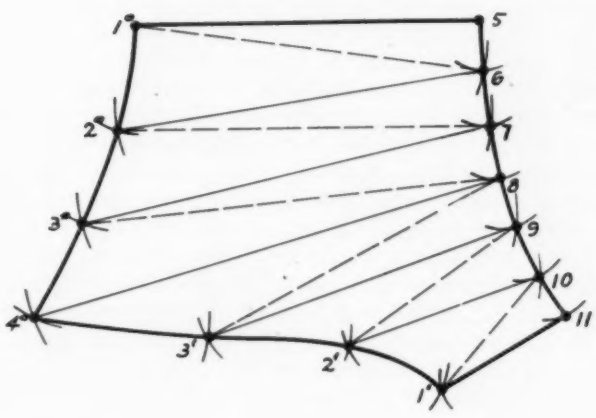


FIG. 4 ONE HALF NET PATTERN FOR 8" PIPE

Three Way Pipe—Wm. Neubecker

required true length is the distance between the two points established by the altitudes. In the same manner, the true lengths of all solid and dotted lines in Fig. 1, are established.

Establishing Miter Cut

Now take the girth of half the circle in Fig. 2, and set it off as in Fig. 3, from 1 to 4 to 1. From these points draw horizontal lines indefinitely. Draw any perpendicular line as A-B representing the desired length of the 15 in. pipe. Measuring from the line A-B, the distances to the miter line, such as 1-1′, 2-2′, etc., are placed in Fig. 3 on the horizontal lines identified with similar numbers. Through these intersections trace the miter cut from 1′ to 4°.

Developing Half Pattern

In Fig. 4 is shown the half pattern for the 8 in. pipe which is developed as follows: Take the length 1°-5 in Fig. 1, and place as shown by 1°-5 in Fig. 4. Now using 5-6 in the semi-circle in Fig. 1 as the radius and point 5 in Fig. 4 as a center describe the short arc near point 6. Intersect this arc, using point 1° as a center, with a radius equal to the true length of the dotted line 1°-6°. Now with the distance 1-2 in Fig. 2 and point 1° in Fig. 4 as the radius, describe a short arc near point 2°. Intersect this with an arc, using point 6 as a center with a radius equal to the true length of the solid line 2°-6°. Proceed in this manner until the half pattern is developed and trace the outline as indicated. Laps and flanges must be allowed for riveting.

Air Conditioning Fitting

Am calling your attention to the pattern article published in the October issue of the AMERICAN ARTISAN. Am employed as cutter or layout man in one of the largest sheet metal shops in greater New York, who subscribe to your journal. We had a problem similar to the one published in the October issue, excepting that the dimensions were larger, and it had me stumped. We all agreed that a fitting of this kind could not be made without press work, owing to the inner angle of 90 degrees. We made it up in two transition pieces, which was not at all satisfactory to the heating and ventilating engineers who prepared the blue prints. The pattern which you published in the October issue proved that we were not so smart and to show my appreciation I am writing this letter to you. The easy-to-read drawings and text are clear and distinct.

You may be interested to know that we cut out all patterns published in AMERICAN ARTISAN which will be of use to us, and paste them on heavy cardboard and do the same with the text. The problem can then be studied at leisure.

We appreciate the AMERICAN ARTISAN because it is helpful to all sheet metal workers as shown by the articles published therein, and it is the only sheet metal publication presenting practical sheet metal pattern developments. May you publish many more. With all good wishes and success to you.

CHARLES EMRICH

New York, N. Y.

Scientific Shop Layout

• The motivating purpose of the series with the title mentioned now being run in our Sheet Metal Section is to offer suggestions as to the most efficient way in which to lay out a sheet metal shop. We have received the following comment on Mr. Zideck's series. The author wishes us to withhold his name and we will do so, with the provision that any letters we receive must be signed.—Ed.

In the floor sketch presented in the August issue I note absence of reference to welding equipment. Soldering facilities were provided. My observations indicate that there is more welding than soldering now, with the possible exception of the shop which handles considerable roofing. The location of this soldering equipment near the center of the floor struck me as being rather faulty. Usually soldering furnaces are found on wall benches where there will be less danger of accidental contact and where the smoke can be exhausted more easily.

If the shop that was described in this article is an actual shop in New York City I am unfamiliar with it. All the shops that I am acquainted with which do a large volume of work are located on the ground floor to facilitate stock handling as well as shipping finished products. I note that the plan called for one elevator to be used for both incoming stock and outgoing material. I fear that moving flat sheets to an upper floor by means of an elevator would pose quite a problem. In the shops which are on the upper floors it is more customary to use an outside hoist.

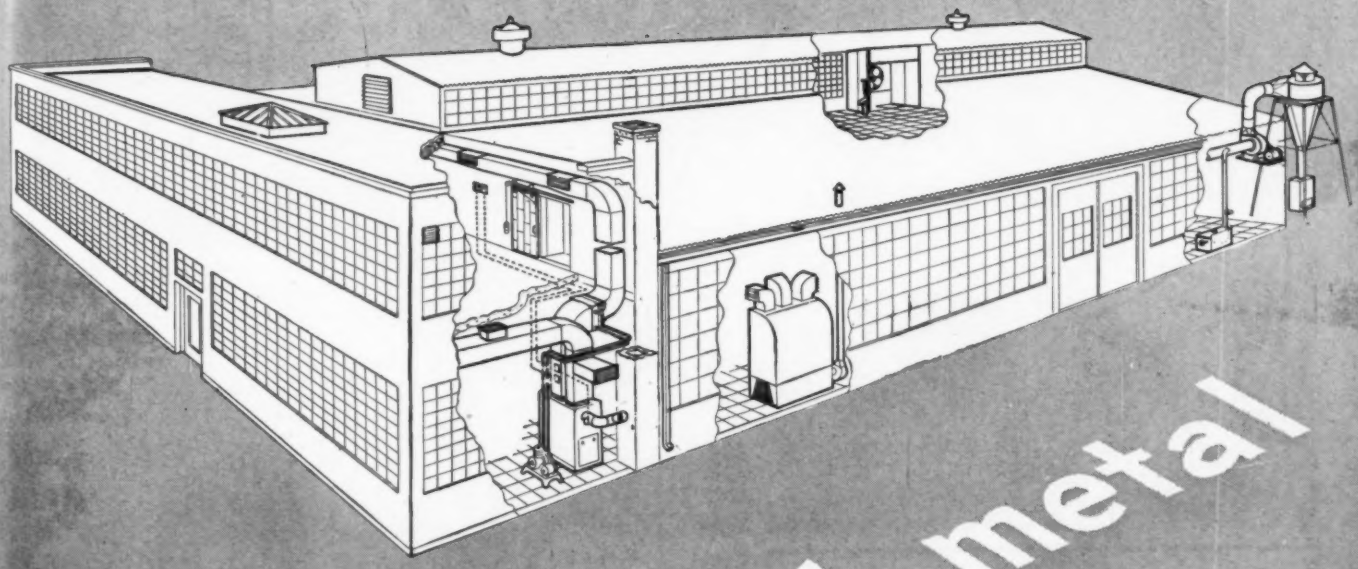
Use of the same door for receiving and shipping material is generally thought to be less advantageous than having two doors. One contractor told me that he thought having the shipping door opposite the receiving door would be the best arrangement. This man has a fine shop handling a large volume of air conditioning work. Other shops also have two doors with one located on a different side from the other. As a matter of fact, two doors at the extreme ends of the shop apparently are more adaptable to straight line production. Near the receiving door would be an area for shearing and presswork and the area around the shipping door is generally devoted to finishing operations such as soldering, welding, grinding and painting.

I do believe that the theme of attempting to set up the ideal shop is a fine one and should bring favorable comments and prove to be of real service to the industry.

New Heating System

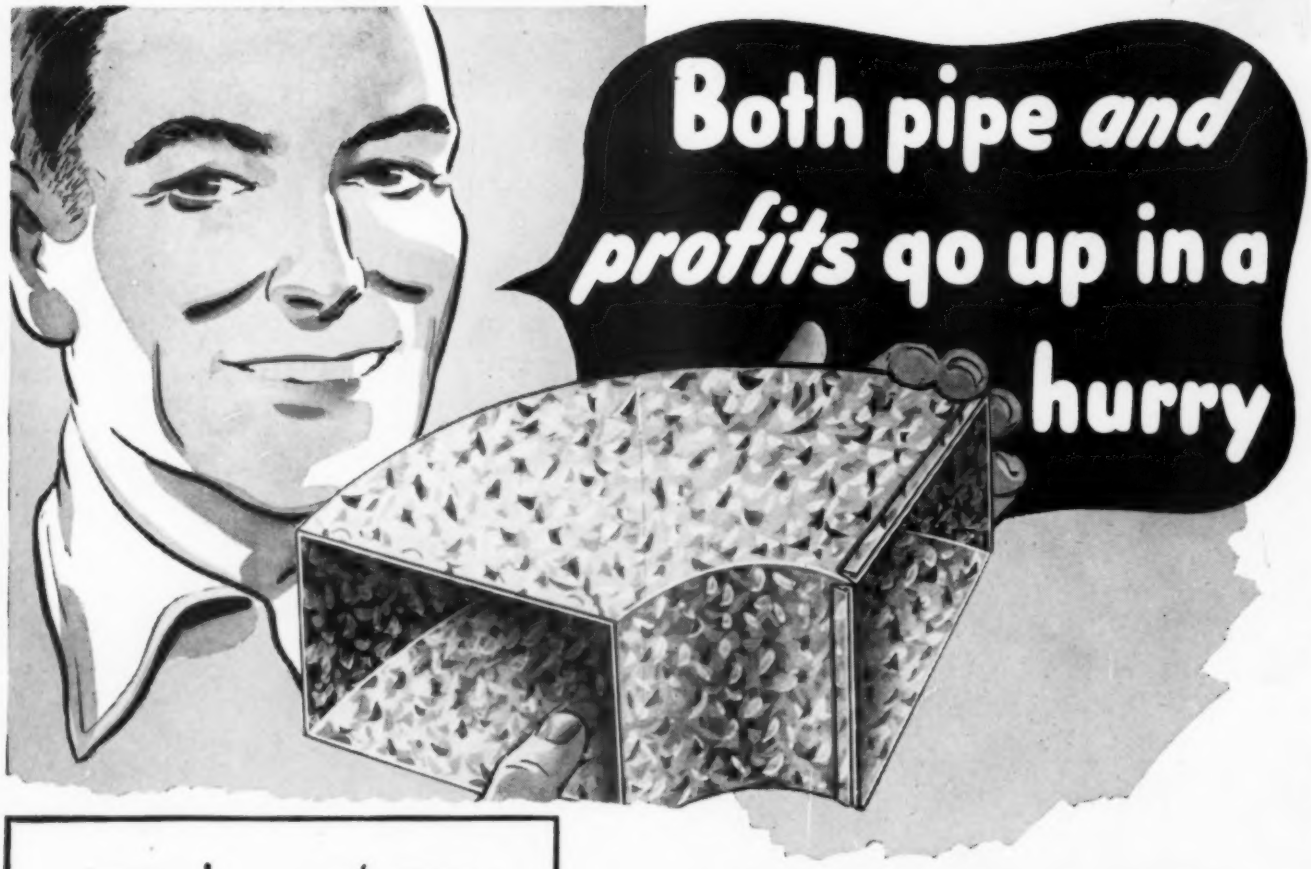
A NEW TYPE OF HEATING SYSTEM, which does away with coal and fuel oil, chimneys and furnaces, storage tanks and flues, is the new pressed steel radiator unit, electrically heated through the medium of hermetically sealed oil, and thermostatically controlled.

The Hurseal unit is filled with a special grade low expansion oil, and permanently sealed. An electrical element, welded into the radiator or panel wall type pressed steel unit, heats the oil, providing a quick temperature rise to a low surface temperature of 160 F. The heating is dispersed over a radiating surface of 20.15 sq ft per kilowatt, thus making it economical to operate. It is claimed that the correct amount of humidity remains in the air.



sheet metal *Section*

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The canopy on this building is faced with stainless steel and extends full length.

Modernizing Store Fronts — Profitable Sheet Metal Work



Pictured when nearly ready to open for business, this building is made more attractive by the stainless steel that is used on the canopy and the awning boxes.



A close-up of the canopy shows the light ports and makes it possible to locate the junction between stucco and metal that is indicated in the drawing.

The customers see the front of a store first and it makes a fine impression if that exterior is inviting and attractive. Most retail merchants are conscious of this truth and you will find store modernization a fertile field for your sales efforts.

R. C. NASON
Long Island City, N. Y.

IN RECENT years one of the most popular uses for stainless steel has been as a material for decorative store fronts and similar architectural applications. The nature of this material itself, and its adaptability to various designs, has brought it to a dominant position in this particular field of sheet metal fabrication and erection. This article is devoted to a discussion of some applications of stainless steel to store fronts by the Corona Store Front Co., Long Island City, N. Y.

In the jobs handled by this contractor part of the fabrication is done in his own plant while some of the material is supplied by the Kawneer Co., of Niles, Michigan, specialists in metal moulding and sheet metal forming. The type of stainless steel that is most universally used in 18 gauge, 18-8 steel.

Dressing Up a Super Market

One of the larger jobs that has been erected recently by Corona is the front that was provided for the Associated Food Stores building which is shown in the illustration. The building front was 246 ft long and sections of canopy facia 10 ft long extended beyond each end. The canopy was built of expanded lath and

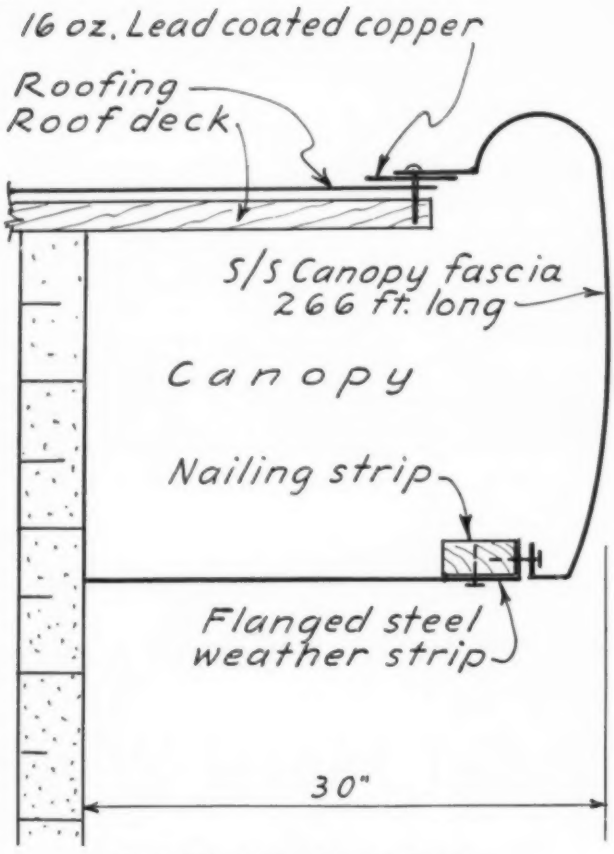


Fig. 3. This drawing shows details of the way the facia is fastened to the canopy.

covered with plaster. For decorative purposes and as a protective measure the upper edge or facia of the canopy was covered with stainless steel formed in a convex profile. The base edge of the facia, after a 90 deg bend (see Fig. 1), was fastened to a wood nailing strip every 6 ft along the length of the canopy. As a means of keeping inclement weather out of the canopy interior, a flanged metal strip was inserted between the facia and the moulding. This was fastened to the main canopy on the other side and thus effectively shielded the interior of the canopy.

Where the top edge of the facia was fastened to the roof it overlapped an 8 in. strip of 16 oz leadcoated copper. Composition roofing material was laid beyond this copper strip and sealed with mastic. Window trim on the job was stainless steel and the head flashings of the windows were also of the same material.

This facia was erected in 12 ft strips which butted together and were backed up by metal strips 6 in. wide. Fastening was by means of roundhead, nickel plated screws to interior wooden framing pieces that curved with the facia. The backing strips were used in place of expansion joints, which are often found in construction of this type.

An interesting treatment was used on the corners of this building where seamless corner sections were installed in place of a mitered and soldered corner. In order to secure a positive alignment at the corners of the building the front and side facia were butted to the corner sections and then fastened to the same type of backing members used on the main canopy. These various steps made possible the erection of weathertight, attractive store front that added greatly to the appearance of this building.

Awning Box Becomes Cornice

Another group of stores called for a different type of installation by the contractor. Here the stainless steel was utilized in 18 in. bulkheads beneath the windows and in 1 in. vertical strips between windows. All of this metal was satin finished. A further use of stainless steel on this job was in the awning box which was required for each of the individual units. The building was made up of five stores, each 20 ft wide.

Metal flashing was installed where the awning boxes joined the wooden framing. Design was such that when the awnings are fully recessed they virtually disappear and the awning box appears to be a cornice running the full length of the building.

An important factor to consider in installations of this type is the cumulative effect that they have. When the storeowner sees his competitor's place of business dressed up with a stainless steel front he will probably be sufficiently impressed to keep it in mind and attempt to make his own store more attractive when he remodels or builds. There are many valuable forms of advertising but one of the most powerful for the sheet metal contractor is the attractive store front that he provided for one of the most popular stores in town.

And one final, very important point: Don't forget to take pictures! When you finish an impressive store front have a good commercial photographer take some shots of it for you. Over a period of time you can build a very effective presentation from large, clear photos of jobs you have done.



Fig. 4. Closeup of entrance showing awning box.



Fig. 5. Stainless steel awning box ran length of building, 100 feet.

Maintenance of Exhaust Systems

H. M. NICHOLS,
Sturtevant Division
Westinghouse Electric Corp.
Hyde Park, Mass.

There is often a tendency in industry to install an exhaust system and then forget it. It cannot be expected to continue functioning in perfect order without maintenance. This article has some valuable information on keeping such systems at peak efficiency.

KEEPING exhaust systems clean and in good mechanical condition not only adds to the health and comfort of the workmen but also saves many productive manhours, expensive repair jobs, and added operating costs. Periodic testing, cleaning, lubrication, replacement of worn parts, and general visual inspection of all elements of the exhaust system will forestall the major part of equipment breakdowns during working hours. This preventive maintenance also pays well by eliminating a large part of the loss of production incurred when workers and equipment can not be used while necessary repairs are being made.

Check Performance

Testing—When an exhaust system has been completed and put in operation it should be tested to determine that it meets the original specifications for which the system was designed. If the air flow conditions are not up to the required specifications, or the working space is not suitably cleared of contaminants, then necessary revisions and adjustments should be made to accomplish the desired results.

With the system operating satisfactorily, a permanent record of the pertinent test data should be made and the practice should be adopted of periodically checking the test figures to make sure that the exhaust system continues to operate at the required efficiency.

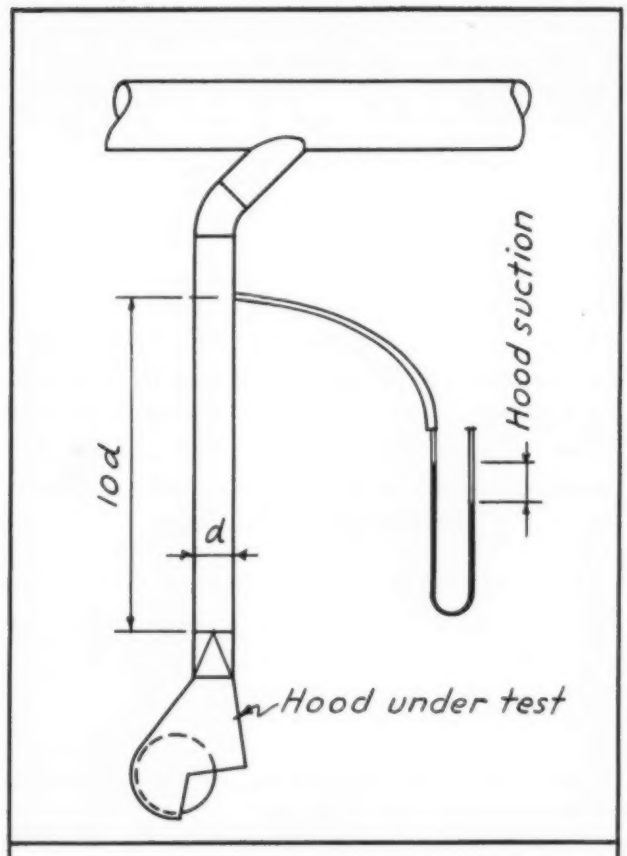
Suction at the exhaust hoods, provided the hoods are unobstructed and free from leakage, is a measure of the air exhausted and consequently of the efficiency of operation. Therefore, from an operational standpoint the most important test requirement is a periodic reading and recording of suction at each hood. It is advisable to take these suction readings at the hoods once a week, making sure when the readings are taken that the hoods are properly adjusted, unobstructed and that the connecting duct is free from obstructions or leaks. Under these conditions hood suction will be a definite measure of operating efficiency.

Reading and recording of suction at the fan inlet, static pressure at the fan discharge, static pressure at the entrance to dust separator and fan speed will assist in quickly locating the cause of any drop in operating efficiency that may be indicated by a drop in hood suction. Where air filters, or screen type separators are a part of the exhaust system the pressure drop across the filters or separators should also be taken and recorded.

While it is generally agreed that it is difficult to make accurate field tests of air flow, simple static readings taken on the side of the pipe are a satisfactory measure of changes in operating conditions. It is often impractical to translate these readings into quantative results, but they do indicate relative changes in air flow, which is all that is required to keep a check on the operation of an exhaust system.

Taking a Reading

Tests for static suction at the hoods are made with a U-shaped water gauge as indicated in Fig. 1. The point at which the test is made should be ten diameters of pipe from the hood connection, or at least one foot from the hood or any elebow. The test is made by placing one end of a rubber tube over a small hole made in the side of the pipe. The other end of the rubber tube is attached to one side of the water gauge. Tests should be taken with all blast gates open and all hoods unobstructed. Test holes should be drilled (3/16 to ⅛ in. dia.) rather than punched, otherwise the burr on the inside of the pipe will cause eddies which will affect the readings. U-tube readings at the other points in the system are taken in a similar manner. While relative readings are always comparable it is desirable to have these readings as true as possible and for that reason measuring locations should be selected with considerable care. Readings are only true when the



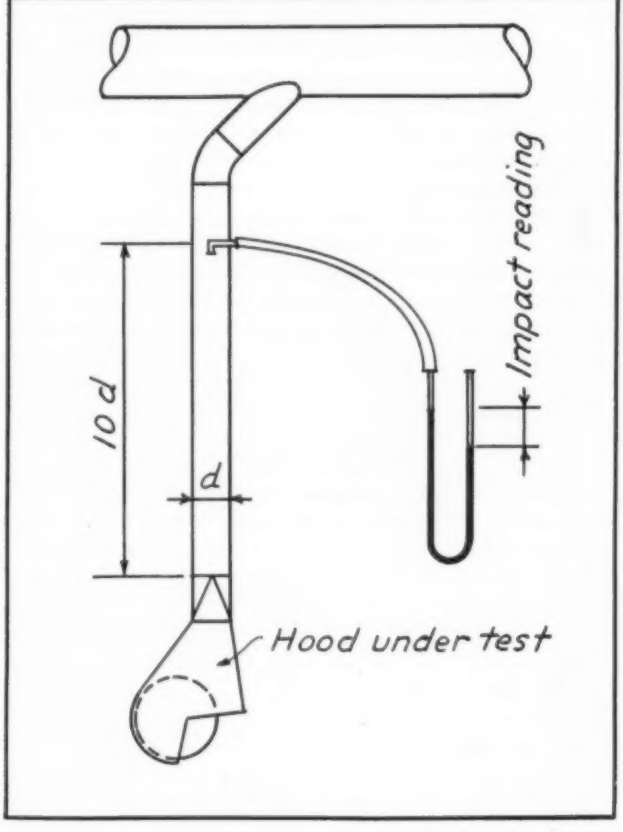


Fig. 1. Suction Test

Fig. 2. Impact Test

air flow is parallel and there are no eddies. Many field measurements must necessarily be made in places where it is apparent that the flow is non-parallel. In such cases the procedure is to select the least objectionable location and drill several holes around the circumference of the pipe to determine the best place to take a reading.

Differential readings are taken in similar manner except that rubber hose is connected to each leg of the U-tube and the open ends are held over test holes located on each side of the equipment to be tested.

Measuring Impact

While the most common field practice is to take readings on the side of the pipe as illustrated in Fig. 1, a more technical approach which gives truer readings is to measure impact pressures as indicated in Fig. 2. The impact tube consists of a brass or copper tube of about ⅛ in. internal diameter bent at right angles and held in the center of the pipe so that the air flow is parallel with the impact section of the tube. In the case of suction readings the impact tube indicates static suction less the velocity head, while in the case of pressure readings the impact tube gives static pressure plus the velocity head.

In any event the differential reading between two impact tubes represents the pressure drop between the points where the measurements are taken.

In the case of differential readings of small magnitude the U-gauge may be inclined for the purpose of magnifying the readings. The inclined gauge must be mounted firmly and held in a fixed position in relation to the horizontal plane. Relative readings could be compared but if it is desired to translate these readings into inches of water then it will be necessary to calibrate the U-gauge in its inclined position. Inclined gauges which read directly in inches of water can be purchased. In interpreting test results, as long as the suction (taken with all piping tight and hood openings unobstructed) at all hoods remains constant the quantity of air exhausted will remain constant. Drop in suction at individual hoods indicates local trouble which can be located by inspection. The more common conditions are clogging of material, obstructed, dented or broken ducts. General drop in suction at all hoods indicates clogging of mains, obstructed, dented, or broken main ducts, clogging of air cleaners or cyclones, or decrease in fan speed. The latter is most likely to be caused by slack belts.

Where the fan suction has decreased and the fan discharge pressure has increased by approximately the same amount the probable trouble is either clogging or obstruction of the main duct beyond the fan, clogging or obstruction of the air cleaner or cyclone.

A considerable increase in fan suction with a corresponding decrease in discharge pressure indicates a reduction in air volume which can be caused by clogging or obstruction in the branches or main suction ducts, or the condition may be the result of closed blast gates. Closing blast gates on circuits which are not in use saves power and is unobjectionable so long as the air velocities in the mains are not reduced to the point where material collects in the bottom of the ducts. A rough rule is never cut off more than twenty-five per cent of the duct area.

An excessive differential reading across filters or screen collectors indicates dirty elements which should be cleaned or replaced.

Hoods, Booths, and Piping

Maintenance—Where operating conditions are not unduly severe a monthly inspection and cleaning of hoods, booths (paint spray booths weekly) and piping, with correction of any mechanical defects should be sufficient. Hoods should be observed to make sure that they properly enclose the process or operating tool, that they are free from dents or sharp projections that might injure the workman's hands. Frequently control hoods are severely abused, especially around shakeouts in foundries and wood-working machines. Where experience shows that hoods are subject to these severe conditions light metal hoods should be replaced with hoods constructed of heavy metal. The edges should be wire bound for added strength and as a protection to the workman against cuts from sharp projections. Connections to branch ducts should be tight and all slip, ball, or other moving joints should fit closely, as even a small leakage opening can result in a considerable loss in hood efficiency.

Dirt or other refuse accumulations should be removed from hoods since refuse accumulations in hood entrances cut down the volume of exhaust air and may constitute a dangerous fire hazard. This is especially true where there is an accumulation of oily or readily flammable materials.

Spray booth hoods should be cleaned weekly. The process can be facilitated by coating the walls and baffles of the booths with one of several compounds which are furnished for preventing paint spray from adhering directly to the walls. However, it is advisable to start with the compound on a new booth before any spraying has been done as these compounds do not work so well over surfaces which have been originally covered with paint spray. A practice which is frowned on because of the fire hazard is to cover the walls of the booth with grease or to attach sheets of paper.

Fan Maintenance—Maintenance on exhaust fans will depend on the type and severity of the application. Exhaust fans on the clean air side of cloth screen separators or scrubbers require relatively little attention, while at the other extreme, exhaust fans handling spray booth exhaust require cleaning weekly.

The fan, drive, and motor should be inspected periodically. Fan speed should be checked, V-belts inspected for tension and motor cleaned of accumulated dust. Slackness of V-belts is indicated by a drop in fan speed. When a V-belt must be replaced replace the entire set of belts as new belts will not work properly in conjunction with used belts, due to the difference in stretch.

Fan and motor bearings should be checked for overheating and lubricated in accordance with standard practice for the type of bearing. If the bearings are anti-friction, ball or roller, as is likely to be the case they will probably need to be lubricated only about once in four to six months. However, this should not be taken to mean that the lubrication job can be haphazard or that any lubricant is suitable. While one of the major advantages of anti-friction bearings lies in the fact that they require infrequent lubrication and

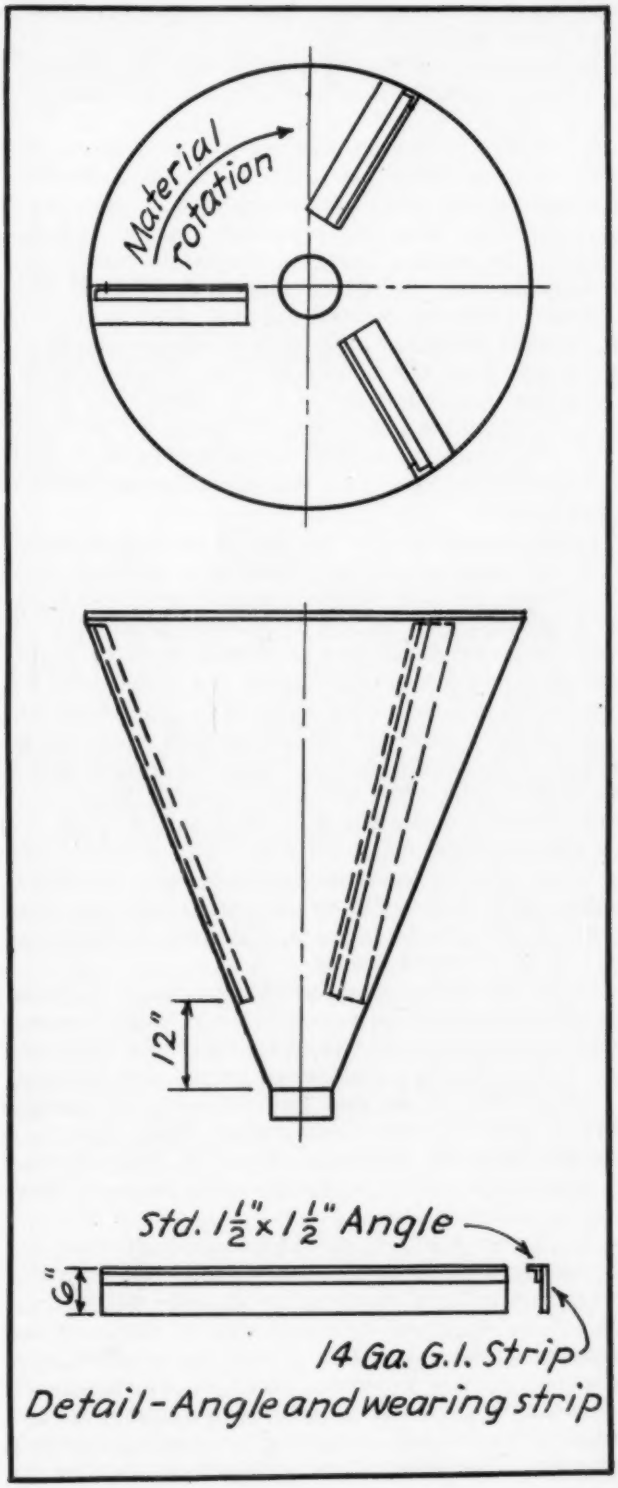


Fig. 3. This drawing shows a cyclone collector that has been fitted with wear-resisting angles. These angles have increased the life of such cones considerably.

thus make the maintenance problem relatively simple they still require attention.

Experience or preferably the bearings manufacturer's recommendation will best determine the lubricating periods.

Over-filling of grease bearings is one of the worst evils of anti-friction bearing maintenance. Forcing excessive grease into the bearings with a grease gun may burst the seals and cause the bearings to leak. Also, if the bearing space is completely filled with grease, the balls or rollers have to force their way through it causing overheating and eventual failure. A properly lubricated anti-friction bearing should be about one-third full of grease in the bearing space. Good practice in lubrication is to remove the drain plug, pump in new grease until it appears at the drain plug. Then run the bearing about five minutes with the drain plug open and the excess grease will be forced out.

During inspection the fan should be checked carefully for vibration. When vibration is detected in a centrifugal fan the impellor should be checked for worn or missing blades and for material accumulation. Material accumulation should be scraped off, or in the case of accumulated paint spray the wheel may be removed and placed in an alkali bath. Do not use an alkali bath on wheels of aluminum since aluminum is quickly attacked by alkali. Impellors having badly worn blades should be replaced or rebuilt. Where impellor wear is severe the worn spots may be built up by applying hard metal surfacing, with a torch. Rebuilt or repaired impellors require careful balancing before being returned to service. An experienced man can give the impellor a running balance operating on its own shaft and bearings.

In an emergency a fan which has thrown a blade (provided there are an even number of blades) can be kept in operation at a reduced air volume by removing the opposite blade to maintain the wheel in balance.

Fans subject to corrosive fumes should have the internal parts wire brushed, scraped clean and then painted with an acid-resisting paint. This process should be repeated when the paint film begins to show sign of deterioration.

Air Cleaner Maintenance—Cyclone collectors are designed for separating the conveyed material from the air stream and not for storage of material. Either they should be arranged for continuous removal of the separated material or they should be provided with attached storage hoppers. Under no circumstances should the cyclone cone be utilized as a storage hopper as such practice will materially lower the separation efficiency. Receiving hoppers should be emptied at regular intervals, so timed that they will be about three-quarters full.

Damage to Cyclone

Where large quantities of abrasive materials are collected these materials have a tendency to swirl around the cone of the collector for a considerable time before working down to the discharge outlet. The continual swirling of this abrasive material inside the cone causes a severe cutting action. Collector cones should be inspected to observe the amount of wear developing. If the wear is observed to be severe it can be overcome by placing three vertical angles in the cone as illustrated in Fig. 3. These angles are backed up with six inch wide wearing strips to assist in absorbing the extra wear which is concentrated near the angles. The angles and wearing strips should extend from the top of the cone to within a foot or two of the bottom of the cone. They may be cut in several sections to facilitate assembly and riveted or tack welded to the inside of the cone. Assembly should be as indicated by the arrow, so that the extended leg of the angle and the wearing strip face into the spinning air stream.

Air cleansers of the cloth filter type should be shaken down or vibrated between each working shift. The suction fans must be shut down while the screens are being shaken or the accumulated dust material will be prevented from falling off the screens into the storage hoppers, and also dust will be drawn through the filter screens into the clean air side of the system. The dust collected in the hoppers must be regularly removed and not allowed to accumulate to more than one-half to three-quarters of the hopper depth.

When making a general inspection of the exhaust system inspect the dust side of the screen collector to determine whether the cloth has been properly cleaned and if the dust is being effectively removed by the action of the shaking device. Also check the dust hoppers to make sure that rust is not bridging across the hopper. Check the clean air side of the filter for evidence of dust leakage through the seals or through the cloth screens. Any screens showing evidence of wear or leakage should be repaired or replaced. Check condition of wire frames supporting the screens, as any projection of broken wires will punch holes in the filter cloth. Check and lubricate the shaking mechanism and make sure rocker arms are tight on shaker shafts. Inspect the collector casings for leakage. Check the operation of rotary dust discharge attachments and condition of canvas discharge tubes.

Rotary centrifugal air cleaners combine the function of fan and air cleaner in one unit and should be given the same care as conventional fans.

Wet air cleaners operate on the principle of mixing the dirty air with a water spray or fog and then impinging the mixture against baffles.

Some form of moisture eliminators is employed to separate the dirt and water mixture from the air. These eliminators require checking and maintenance for if they are allowed to deteriorate water will be drawn into the exhaust fan. Water supply, circulating pump, drains, etc., all require attention and dirt and sludge must be removed from the settling tank at regular intervals.

To Sum Up

Summary—In general it can be said that good exhaust maintenance consists of systematic and regular inspection, testing, care, and adjustment, together with the repair or replacement of worn parts before failure occurs. Experience will best determine frequency of the various maintenance operations, since the requirements will vary widely depending upon the severity of the application and the local conditions. However, once a schedule of operations has been set up, it should be carefully adhered to for best results.

Scientific Shop Layout (IV)

ERNEST E. ZIDECK
Sheet Metal Consulting Engineer

The fourth of a series designed to present the latest in shop layouts and techniques for efficient production to our readers. The author's experience in sheet metal design and production has enabled him to show step-by-step the way in which a sheet metal shop can be made to operate most effectively and economically.

AMONG the determinants of a scientific shop layout is the product itself. If the product is in a class whose handling requires ample area at each operational stage, then spaciousness takes precedence over provisions for rapid movement of parts from stage to stage. In the selection of shop layouts drafted for this series of articles on the subject, periodically appearing in the AMERICAN ARTISAN, nature of the product has played a part, so that each of the layouts shown applies to a certain type of fabrication or production.

In the accompanying drawing, Fig. 1, (Page 96) is shown a New York city ground floor shop, used during the war for production of parts for electronic units for the armed forces. It is now engaged in the fabrication of sheet metal accessories for radio, consisting of inner housings, panels and receiving parts. The drawing reveals an unique planning for this type of production. Numerous small sheet metal parts must move quickly through the operational stages to completion. A minimum of punch press die work figures in this fabrication, the bulk of work being done in squaring shears and cutters. Rotary shears and drill presses prepare the blank and forming is the next step. Spotwelding is the principal fastening operation. The parts and the small assemblies require rustproofing, which is administered by thin coats of sprayed paints, dried and baked by oven heat.

A Handling Problem

The multiplicity of parts, neither of which exceeds two square feet in size, called for design of a conveying system which would move the blanks from one operation to another rapidly. An overhead conveyor was impractical, because it necessitated containers for the small sheet metal parts. This was discarded as a waste of time, since the operational stations were adjoining and there would have been a continuous loading and unloading, while the container travelled but a few paces. A conveyor on rails imbedded in the floor presented a similar aspect, as the cars moving on the rails would take up space about the machines, without moving the parts a greater distance than to the next machine, a few steps away. Still, the parts had to be moved, and if carried or handled by the workmen, would have had to be deposited on benches, near the machines. Traveling benches (shop trucks) would have solved the problem had there been much more floor space than available here, but it was necessary to provide a large enough room for the paint-spraying and drying operations, and a store room holding the product until it could be trucked away. Moreover, since receiving and shipping were handled by a single entrance that factor had to be considered.

The Problem Solved

Solution of the problem was found in the arrangements depicted in the drawing (Page 96) as follows: (a), the rustproofing rooms (letters F-G-H in the drawing), and the store room (marked by C in the drawing), were erected to occupy the central half of the entire floor space reserved for production, with the final assembly, 10, placed between the two rooms. A continuous bench, its top covered with aluminum sheets smoothly joined, was installed . . . flanking the walls of the rustproofing and store rooms, as at X-X-X-X, in the drawing. A portion of the bench top, I, was put on hinges, so that workmen could enter the final assembly, 10. This continuous bench, beginning near material storage B, and extending to the area left for loading near A, served as a static conveyor of parts, the workmen simply pushing them ahead to the next operator, who picked them up, processed them, and returned them to the bench. By this arrangement, the thin sheet metal parts retained their shapes, and were not bent or marred as they might be, if placed together in a container. Helpers stationed along the bench kept the parts separated and in movement, serving them to the machine operators as needed.

The center of the shop was occupied by the rooms F-G-H and C, with a continuous bench running along the walls, leaving about eight feet of floor space between the bench and the walls of the building. The floor space remaining between the middle rooms and the rear wall of the building measured about fourteen feet in width, the same as that between the bench X and the offices in the front part of the building. The free space along the benches X-X was admirably suited for locating the machinery, beginning with shears and

Fig. 1 Shop Layout
Fabricating Radio Accessories

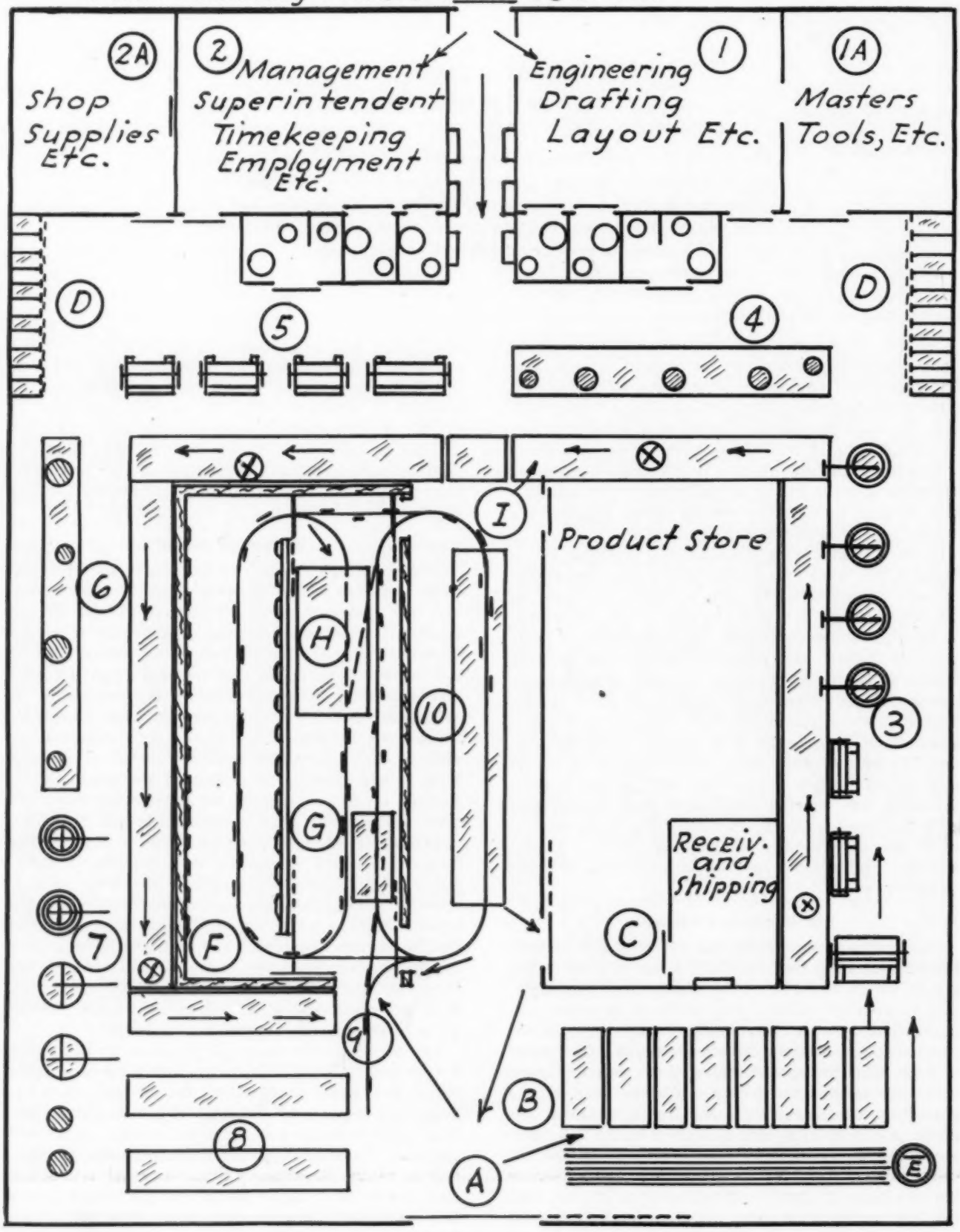
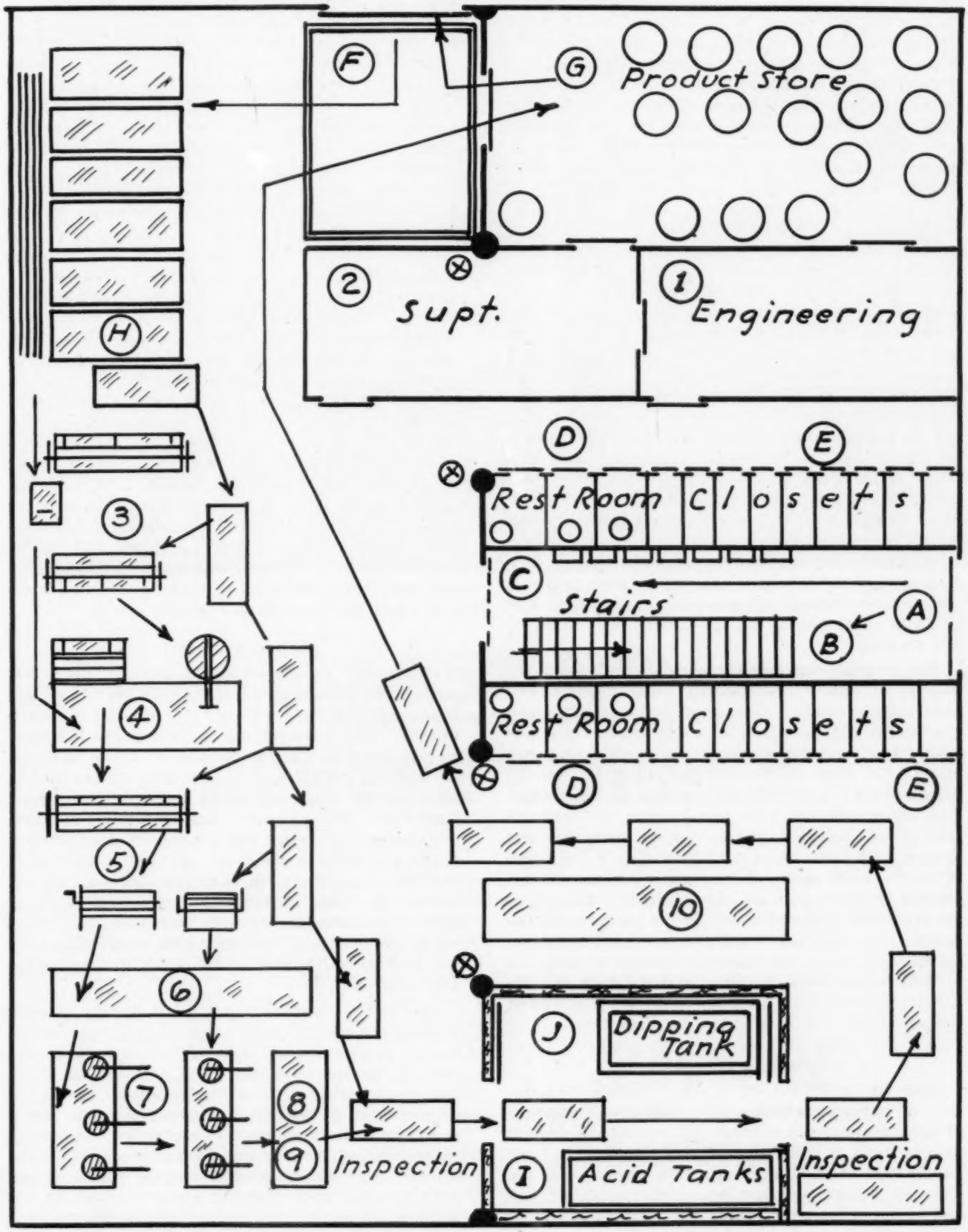


Fig. 2 Shop Layout
Fabrication of Ventilators



cutters extending from materials B and the cutter E, throughout the area marked by 3, indicating exterior blanking. The space nearest the offices was occupied by operational steps and machines, 4, interior blanking; and 5, forming. Along the other side wall of the building were placed facilities for 6, fitting; and 7, fastening. And in the left rear of the shop were placed benches for operations 8, abrasive finishing; and 9, pre-assemblies and preparation for rustproofing, F-G-H. The final assembly 10, is operating in the space reserved for it between the rustproofing and the store rooms. The parts coming from F-G-H are taken from the conveyor moving overhead, and deposited for assembly and completion at 10, and for delivery into the adjoining store room, C.

The Material Flow

It will be noted that the materials enter through A in the rear of the building; that the materials move into processing by E and the shears and cutters assorted at 3; that the parts blanked at 3 are moving forward on the bench X to be operated on at 4, and formed at 5; that the parts enter 6 and 7 constantly moving forward; and that they come to 8-9 continuing the forward flow. The arrangement of the machines and working facilities in sequence of operations, as shown by the numerals 3 to 9, precludes any crowding or clogging at production stages or confusion that would result if the workmen had to traverse the shop in search of a machine in which to do a certain operation. Crowding of workmen is practically impossible in this shop, because their respective work-stations are arranged in a continuous line, not entered at any time by operators tending their own tasks. The operations are stretched through the shop in a way barring crowding and confusion, as will be clearly seen, studying the drawing.

The overhead conveyor operating through the rooms F-G-H and above the assembly bench 10, is moved mechanically along its outer orbit; and manually above the tank G, degreaser, and below the roof of the spray-booth, H. The parts coming from 9, where they are hooked (by wire) to the conveyor chain, are lowered into the tank G and washed in the solution. From there they are propelled to H for thin priming, and returned past G for hook-up to the moving chain of the outer system, slowly traversing the heated area F. Transfers from the outer system to the inner one are accomplished by switches, manually regulated. The primed parts re-enter H from the farther end, as shown by the arrow; a second coat of a dull-black paint is applied to the sheet metal, and its travel through F for drying is resumed, by the connection past the tank G. The other connections permit a rejected part (rejected at 10), to be returned to H or to 9 for reworking.

Operations Don't Clash

Materials for F-G-H are received through the adjacent A, without interfering with production. Materials B are also unloaded without obstructing the orderly flow of parts in production. The products taken from the storage room C, and loaded on trucks at A, are handled without interruption or obstruction of any one of the processes of production. This also applies to the delivery of the product by 10 to the storage room C. The other operators do not even notice it. As indicated in the drawing, Receiving-Shipping is handled from a small office located in the store room C, from which communication with the front offices is by the door marked I. Adjoining the offices are clothes closets D-D, and rest rooms, accommodating both the shop and the office personnel, with separate entrances from the shop and the offices. The main entrance for all personnel is from the street, past the number of time clocks posted for operation in the passageway separating Engineering, 1, from the offices proper, 2. The adjunct 1-A handles small tools and the Masters patterns used at 3-4-5; and the adjunct 2-A issues shop supplies to the production departments.

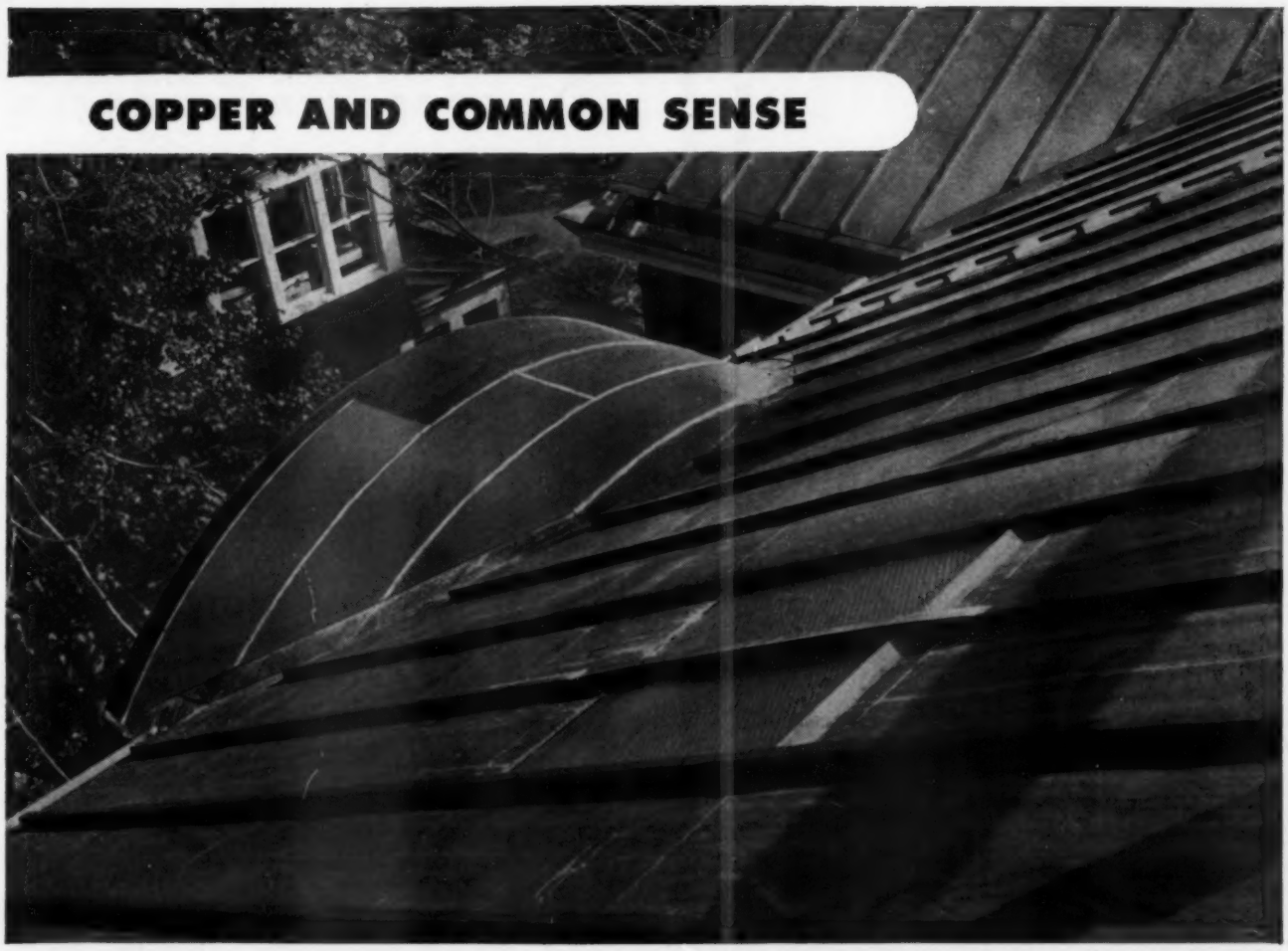
The shop shown in Fig. 2, accompanying this text, Page 97 had been functioning long before Pearl Harbor, manufacturing roof ventilators. It occupies the ground floor of a three-story building, originally serving other than manufacturing purposes, as indicated by the massive, five ft starway, leading up from a ten ft hallway entered from the street by a double door. The letter B applies to the stairway, while C indicates a door leading from the hallway into the ground floor shop. The upper floors are supported, by the columns X-X, which in connection with the rising stairway and the wide corridor at A-B-C, cut off this middle portion of the floor area from use by the shop. Thus, lining the walls of the A-B-C area, are installed rest rooms D-D and clothes closets, E-E, for both the shop and offices. The elevator F serves the upper stories, and provides the only trucking facility for the ground floor. The store room G, engineering room 1, and supervision room 2, were remodeled at the time the shop was engaging in war production, together with the galvanizing room I-J in the foreground in the drawing.

A Simple Product

The product fabricated in this shop for the armed forces was simple enough: it consisted of a 12 in. dia. drum, with a seamed top, and a funnel-like extension provided with a riveted cap; the drum was fashioned on its bottom end to fit the slope of a roof, and was seamed to a roof plate, two ft square. It was used in barracks, for receiving smoke pipe into the funnel, from wood burning furnaces, hastily installed in southern cantonments when the weather brought freezing temperatures not foreseen at the time of erection of the barracks. The drum was provided to keep the smoke pipe, often red hot, from the wood of the roof. And since galvanized sheets were rare, and metal scarce, black sheets in seconds and rejects were used, the product galvanized at I-J after its completion, and soldered at 10.

Also here the requirement for fast moving of parts through the operations, had been the essential consideration in planning the shop for this production. But here the product was fairly bulky, necessitating a system of conveying it, from final assembly, 10, to the storage room G, without interfering with the movement of materials and parts in production. Accordingly, the materials were located for use next to the elevator from which received, and the machines and work benches were lined up along the wall of the building, as seen in the drawing. For conveying, shop

(Please turn to page 144)



Architect: Jens Fredrick Larson, New York; Contractor: O. A. Petersen Construction Co., Montclair, N. J.; Sheet Metal Contractor: Moeltner Company, Montclair, N. J.

ANOTHER LASTING ROOF OF REVERE COPPER

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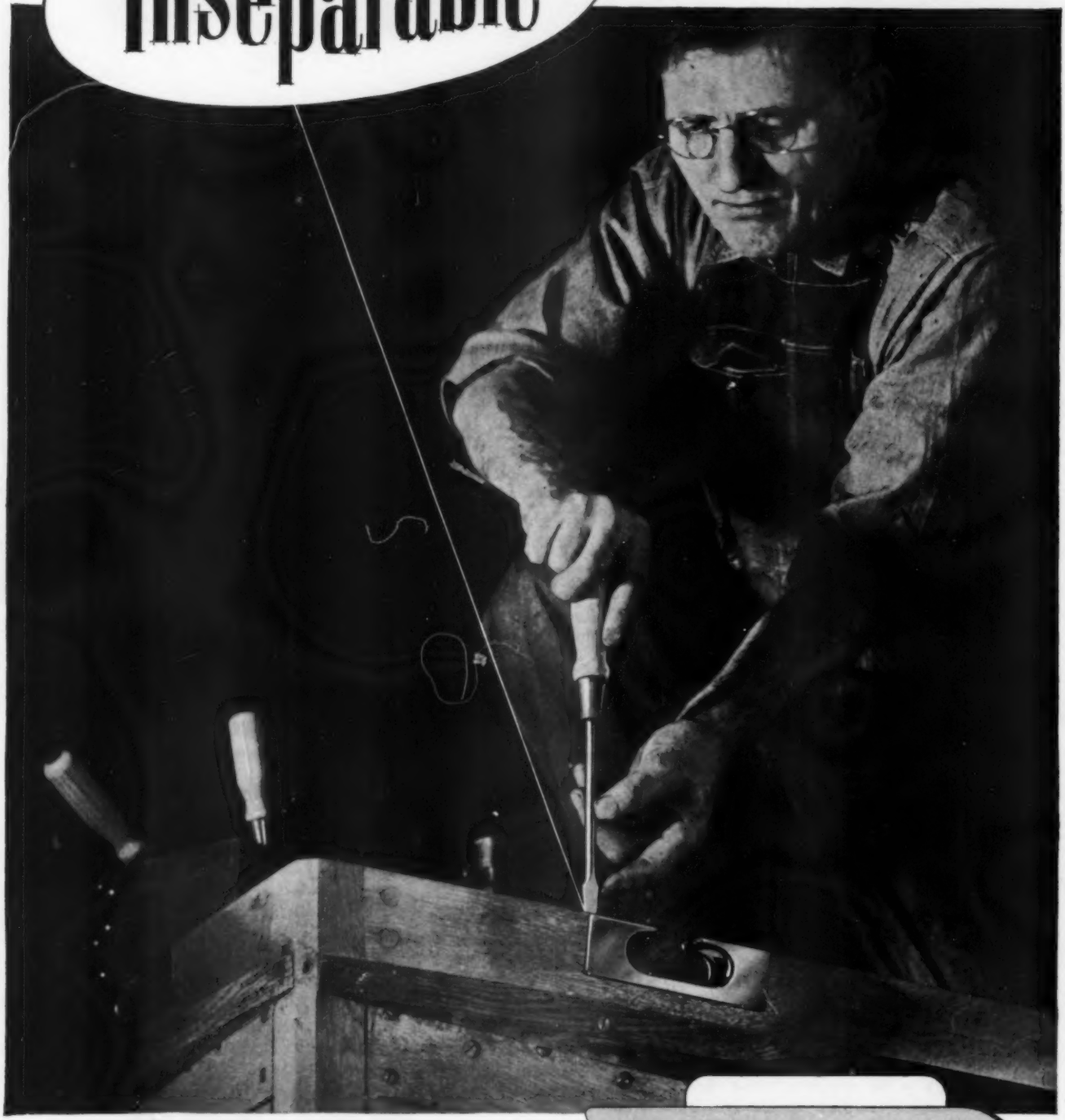
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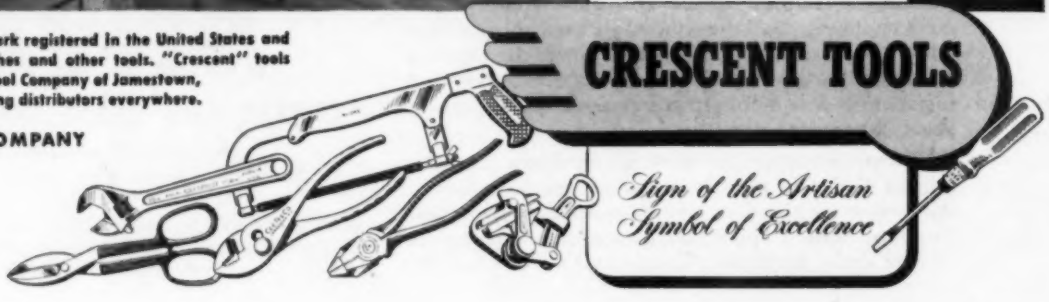
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Indiana

IN OUR October bulletin we brought to the attention of our members the fact that the Senate subcommittee headed by Indiana's Senator Capehart, has requested the opinions of our industry as to the effect that the basing point decision of the Supreme Court will have on the operation of our businesses.

Other topics covered included the cut in federal funds to the Indiana Employment Security Division which had proved itself to be one of the most efficiently administered of such state bodies; some further convention news and more statistics on our membership drive.

FRANK E. ANDERSON

Secretary

California

GRADUATION exercises for 128 journeymen heating installers who successfully completed an 8-week educational course designed to make them more proficient in installing gas furnaces in Southern California featured the November meeting of the Institute of Gas Heating Industries in Los Angeles.

W. M. Jacobs, general manager of the Southern California Gas Company, gave the valedictory address.

The educational course, sponsored jointly by the Institute and the local utility company, was given under the direction of M. P. Stillinger and B. F. McMahon. Its goal is to provide better, safer gas heating installations at lower cost to Southland householders. It was announced that the Institute's educational program is being expanded to include Gas Heating Engineering, Sales Training, and Business Management.

ERNEST W. KIMMEL

Managing Director

New York City

THE Roofing and Sheet Metal Crafts Institute, Inc., went on record at a recent meeting as being in favor of Regulation W Consumer Instalment Credit, dealing with down payment and maturity restrictions on modernization and repair credit.

The Institute recently welcomed two new members: Charles E. Emmett Co., 70-13 Myrtle Ave., Glendale, L.I., and the Westchester Roofing Co., 650 Westchester Ave., Bronx, N. Y. The latter concern is operated by Irving and Sidney Dominick, and the firm has been in business for the past thirty years.

COMING EVENTS

Jan. 6-7—Sheet Metal & Roofing Contractors Association of Minnesota, Inc. Annual Convention. Hotel Lowry, St. Paul. C. E. Parriott, Secretary, 924 Raymond Ave., St. Paul 4, Minn.

Jan. 24-28—Ninth International Heating and Ventilating Exposition and 55th Annual Meeting of American Society of Heating and Ventilating Engineers. International Amphitheatre, Chicago. A. V. Hutchinson, Secretary, 51 Madison Ave., New York 10, N. Y.

Jan. 25—National Heating Wholesalers Assn. Second Annual Convention, Blackstone Hotel, Chicago. R. M. Colegrove, Exec. Secy., 239 Water St., Pittsburgh 22, Penn.

Feb. 3-4—Sheet Metal and Warm Air Heating Contractors' Association of Indiana, Inc., 31st Annual Convention. Hotel Severin, Indianapolis. Homer Selch, 944 Hosbrook St., Indianapolis 3.

Feb. 6-8—Sheet Metal Contractors Assn. of Wisconsin, Inc., 34th Annual Convention, Hotel Schroeder. A. H. Luedke, Exec. Secy., 225 E. Michigan St., Milwaukee 2, Wis.

Feb. 12-20—1949 Home Show of St. Louis. Home Builders Assn. of Greater St. Louis. Kiel Auditorium. John Bogdanor, general chairman, 1624 Delmar Blvd., St. Louis 3, Mo.

Apr. 4-6—New York State Sheet Metal, Roofing & Air Conditioning Contractors' Association, Inc. Convention and Product Display. Mark Twain Hotel, Elmira. Clarence J. Meyer, Secretary, 567 Genesee St., Buffalo 4.

May 9-11—Liquefied Petroleum Gas Assn. Annual Convention and Trade Show. Palmer House, Chicago, Ill. Howard D. White, Exec. Vice President, 11 S. LaSalle St., Chicago 3, Ill.

INDOOR COMFORT CONFERENCES

Kalamazoo, Mich.	Feb. 10, 11, 12.
Detroit, Mich.	Feb. 14, 15, 16.
Evansville, Ind.	Feb. 21, 22, 23.
Peoria, Ill.	Feb. 28, Mar. 1, 2.
Duluth, Minn.	Mar. 10, 11, 12.
Omaha, Nebr.	Mar. 15, 16, 17.
St. Louis, Mo.	Mar. 21, 22, 23.
Binghamton, N. Y.	Apr. 7, 8, 9.
Cleveland, Ohio	Apr. 14, 15, 16.
Columbus, Ohio	Apr. 18, 19, 20.

EQUIPMENT DEVELOPMENTS

Press Brake 255

The No. 131 press brake has been designed to cover a wide field in light bending requirements, and to supplement larger machines. Dies are standard types.



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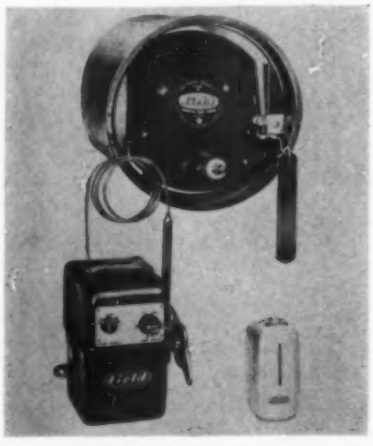
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Use Coupon on This Page

Control System 256

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The system offers maximum safety, economy, comfort, and convenience to the home owner.

Field Control Division, Mendota, Ill.

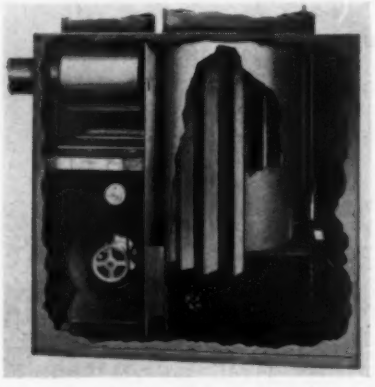
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Constant warm air circulation is accomplished by means of a three stage flame, controlled by a thermostat.

The burner compartment and controls are mounted as a single unit. Combustion and circulating blower are rubber mounted.

A constant level oil control includes an anti-flooding device, blower switch and limit control.



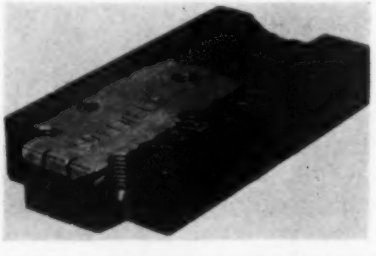
The combustion chamber includes a secondary heating surface to give fast heat transfer.

J. L. Gillen Co., 204 E. High St., Dowagiac, Mich.

Electrode 258

An electrode called Softweld for welding cast iron deposits dense, soft machinable welds.

Softweld is a non-ferrous electrode and operates with a soft steady arc on either a-c or d-c.



The weld arc may be drilled, machined, sawed or tapped with ease.

Softweld is available in 14 in. lengths in ⅛ in. and 5/32 in. sizes.

The Lincoln Electric Co., Cleveland 1, Ohio.

MAIL THIS NOW!

We will ask the manufacturers to send full particulars about the products and literature mentioned. 12-48

Be sure to circle the items you want.

Equipment Developments

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Manufacturer ☐ Jobber ☐ Dealer ☐

Name .....

Company .....

Address .....

Address: AMERICAN ARTISAN, 6 North Michigan Ave., Chicago 2, Illinois

Power Shears 259

A line of power squaring shears has been designed to satisfy the demand for light weight, low cost power machinery.

Three models are available—36, 42 and 52-in.—their respective shipping weights with motor, being 1050, 1200, and 1400 lbs.



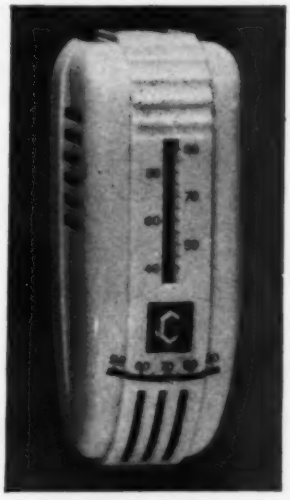
For shops doing light work, these shears are sturdily built and equipped with powerful gear drives. Inlaid, precision ground, high carbon tool steel blades are furnished as standard, as are adjustable front and back gauges, hold downs and guards. The shears have special single stroke mechanisms which can be set for continuous operation.

Famco Machine Co., Racine, Wis.

Thermostat 260

A low voltage thermostat is operated by 24 volt, 2 wire circuit and has a current rating of .75 to .85 amps.

The Type T-80 thermostat is the snap action, open contact, bi-metal type. The switch mechanism is built with silver contact points and permanent magnets. It has heat anticipation for close control of room temperature.



This thermostat comes in an ivory colored plastic case. The back of the two-piece case serves as a mounting stake.

Crise Manufacturing Co., 2040 E. Main St., Columbus 16, Ohio.

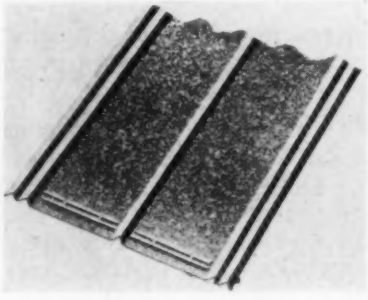
Heating Calculator 261

A heating calculator available can be used for figuring heat losses of residences, sizing round or rectangular ducts, warm air trunk lines, and automatic coal, oil or gas equipment. It may also be used for estimating the approximate annual fuel consumption for heating or hot water requirements.

Stokol Stoker Co., Inc., 2060 Northwestern Ave., Indianapolis 7, Ind.

Roofing Sheet 262

Roofing and siding for farm buildings comes in sheets 26 in. wide with full 24 in. coverage in application. It is made with double V crimps at each side of the sheet and a single V crimp in the center.



Cross crimping at the end laps further insures against rain. Sheets have a finish coat of mineral mica.

V-Crimp is made of Plasteel, the same as the manufacturer's industrial roofing and siding sheets.

Plasteel Products Co., Washington, Pa.

Float Values 263

Two positive action float valves are designed to maintain any desired water level in evaporative coolers.

Bob float valves can be installed above or below water. They are precision machined and have a ratcheted actuating lever that maintains the water at any set level.



The valve plunger is equipped with replaceable soft rubber disk and leather cup. The positive action is controlled by the design of the rocker arm and plunger assembly.

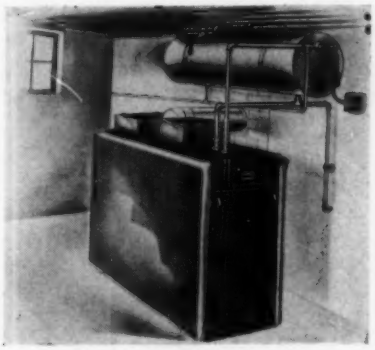
The valve to be submerged is tapped for ¼ in. pipe thread for a top outlet. It is used where alkali conditions require the valve to be submerged to prevent corrosion.

Both a straight and tapered threaded inlet makes it possible to use a lock nut and a standard pipe threaded fitting. The machined flange on the inlet connection, together with the lock nut, assures a tight wall fit.

Robert Mfg. Co., 4004 W. Jefferson Blvd., Los Angeles 16, Calif.

Water Heater 264

A domestic water heater attachment, the Aqua-Air unit, may be connected to any furnace to supply domestic hot water automatically in summer or winter, and to operate simultaneously or independently of the heating demand.



The Aqua-Air unit is heated by the warm air in the furnace; it is not exposed to the fire in any way. It is controlled automatically by an aquastat.

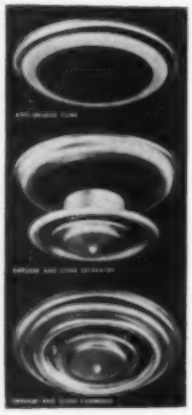
Aqua-Air Research Co., 154-16 Bayside Ave., Flushing, N. Y.

EQUIPMENT DEVELOPMENTS

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Anti-Smudge Cone 265

An anti-smudge cone may be added to the Kno-Draft adjustable air diffuser to control ceiling smudge. Fitting snugly between the outer rim of the diffuser and the ceiling, the anti-smudge cone provides precise minimum separation of the air stream from the ceiling and complements the appearance of the diffuser.



Rubber gaskets for the joints between cone and diffuser or ceiling are available.

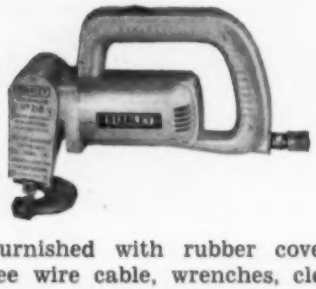
Anti-smudge cones are available for both supply and combination supply and return Kno-Draft Diffusers from 4 to 18 in. neck diameter.

W. B. Connor Engineering Corp., 114 E. 32nd St., New York 16, N. Y.

Power Shear 266

A production tool, the No. 218 Unishear cuts 18 gauge mild hot rolled steel at a speed up to 15 fpm. Weighs 4¾ lbs.

An improved blade action feeds the work so little effort is required to cut straight lines, curves, angles, and notches with hairline accuracy.



Furnished with rubber covered three wire cable, wrenches, clearance gauge and supply of lubricant. 115 volts, with other voltages available.

Stanley Electric Tools, New Britain, Conn.



Motor Starter 267

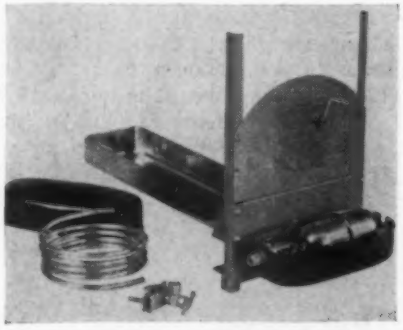
A line of magnetic motor starters and contactors in sizes 0, 1 and 1½ are supplied with NEMA Type 1 general purpose enclosures, but are also available without enclosure for control panel application.

Among the advantages is an overload relay which is adjustable for manual or automatic reset. To convert from one operation to the other, it is only necessary to change the position of the reset spring.

Penn Electric Switch Co., Goshen, Ind.

Instruction Decals 268

To assist dealers Viking has added home owner instruction decals to its complete line of humidifiers. These decals, which are located on the access plate of the humidifier, are clearly printed and will enable the home-owner to order and install replacement parts and service



the unit without calling the dealer.

This method of helping the customer help himself assists dealers in building their lists of satisfied customers without making unnecessary service calls.

Viking Air Conditioning Corp., 5600 Walworth Ave., Cleveland 2, Ohio.

Furnace Control 269

A new single-unit furnace control does double duty as air limit and fan control at a low cost and is the newest addition to the line of control products manufactured by Cam-Stat. It weighs only 12 oz, yet is very durable.

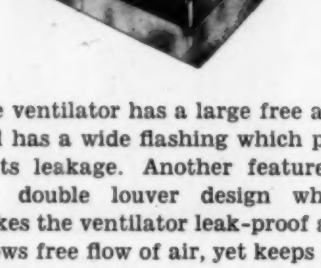


Ratings of both controls are identical—1500 volt amperes, ¼ hp and 125 volt amperes pilot duty at 120-240 volt a-c. The total range of the air limit control is 100/300 F with a 10 degree differential. The range of the fan control is 100-165 F cut-in temperature with a 15 degree differential. Summer position is also provided.

Cam-Stat Inc., 2310 S. Cienega Blvd., Los Angeles 34, Calif.

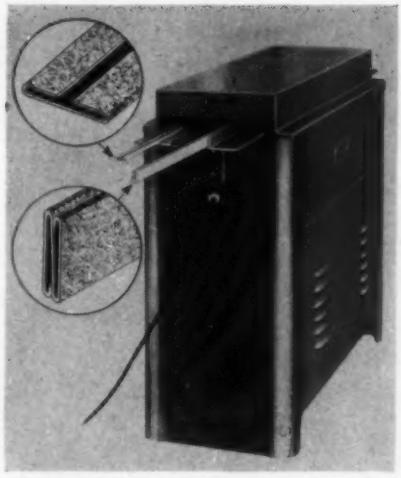
Roof Vent 270

A new roof ventilator has been placed on the market which is specifically designed to solve all the problems inherent in attic ventilation. Made of aluminum, it is rustproof by virtue of its construction. It is riveted rather than welded and features a removable insect screen.



The ventilator has a large free area and has a wide flashing which prevents leakage. Another feature is the double louver design which makes the ventilator leak-proof and allows free flow of air, yet keeps out rain or snow.

Air Control Products, Inc., Coopersville, Mich.



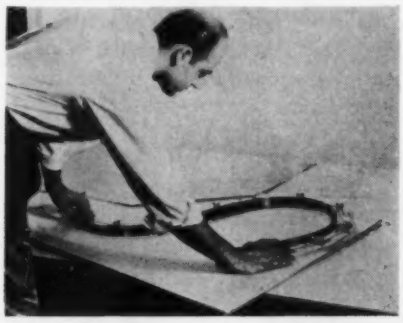
Cleatformer 271

Just announced by Lockformer is its new Cleatformer. Similar in principle to the Lockformer machine, the new Cleatformer is designed to roll both drive cleats and S cleats; both sets of rolls being built in so that either operation may be performed without any changeover or auxiliary roll installation. The addition of a small hem on both edges of the S cleat accomplishes several advantages. Firstly, the additional 180 deg radii at the extreme edges impart considerable extra stiffness to the cleat and make possible cleats of both greater lengths and lighter gauge which still retain adequate stiffness. Secondly, these edges being finished rather than raw, make insertion of the joining edge much easier to accomplish and thus speed assembly. Thirdly, the finished edge makes a better appearance on the joint or seam.

The Lockformer Co., 4615 W. Roosevelt Rd., Chicago 44, Ill.

Template 272

A new, flexible template that duplicates complex curves and eliminates old-fashioned template making has recently been placed on the market. This template duplicates curves, full size, in a matter of seconds. It can be set and locked in any desired shape, contour, curve or radius and transferred anywhere. When unlocked, it springs back to its original position ready for reuse. Most important feature of this tool is that it eliminates trial and

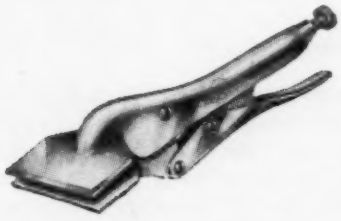


error fittings wherever curved material must be fabricated or duplicated.

R. J. Turner Co., 2404 N. Mascher St., Philadelphia 33, Pa.

Hand Tool 273

A new sheet metal tool has been announced which utilizes Vise-Grip's well-known locked grip. This eliminates the muscular exertion usually required in gripping the handles of the ordinary seamer or tong. The locked no-slip grip makes possible more accurate, smoother bending and shaping as well as



easier operation. This tool is particularly valuable out on the job. It is easily adjustable to toggle action where a powerful grip is not required. The tool accommodates material up to 1¾ in. in depth. Overall length is 8 in.

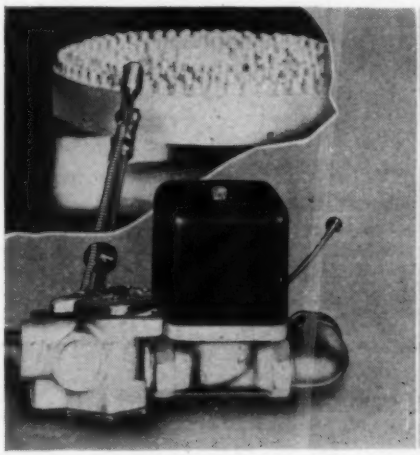
Peterson Mfg. Co., DeWitt, Nebr.

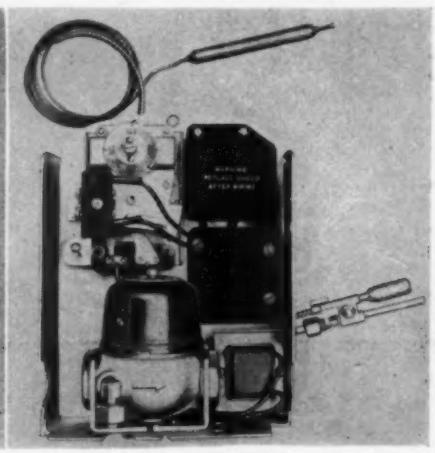
Furnace Controls 274

Two new controls—the furnace Gasapack and the gas Unapac—were exhibited by Automatic Products at the recent A.G.A. Show in Atlantic City. The functions of the gas cock, electric power valve, automatic safety pilot and limit control are all combined in one compact unit in the furnace Gasapack. Thermostat, transformer and low voltage wiring are also included in the kit. The furnace Gasapack can be safely operated by hand if current should fail. Limit control and pilot failure will override manual control. When current is restored, the Gasapack automatically returns to control by thermostat. The capacity of this control is 65,000 Btuh for manufactured gas and 90,000 Btuh for natural gas.

The gas Unapac is a complete gas furnace control system built into a stream-lined case. It combines the model 162 solenoid valve featuring the shielded No-Gum Plunger assembly with a combination fan switch and limit control, the AP electric automatic pilot, a built-in transformer and convenient terminal boards for high and low voltage wiring. Thermostat and low voltage wires are also included in the kit.

Automatic Products Co., Milwaukee 10, Wisc.





EQUIPMENT DEVELOPMENTS

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Diffuser 275

A new line of ceiling diffusers is being produced under the name "Fuseair." According to the manufacturer these units were designed primarily for commercial application and are furnished in types for supply only, or for both supply and

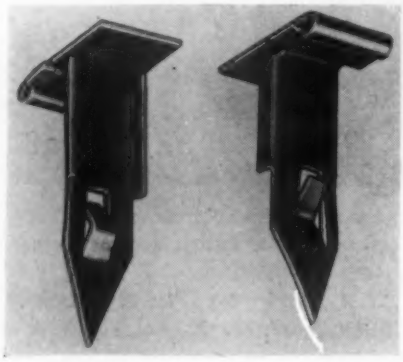


exhaust or return. They can be used for either heating or cooling. Design features of these units include an extended moulding, and it is claimed that if they are properly installed ceiling discoloration can be all but eliminated. All units are fabricated in spun aluminum and are available from stock in twelve standard sizes.

Aladdin Heating Corp., 2222 San Pablo Ave., Oakland, Calif.

Insulation Clip 276

A new quick-drive fastening known as the Lexsuco Insulation Clip and designed to attach insulation to sheet metal has been placed on the market. The clip consists of a sharply pointed, hardened and tempered steel shank with a flat head, as shown in the illustration.

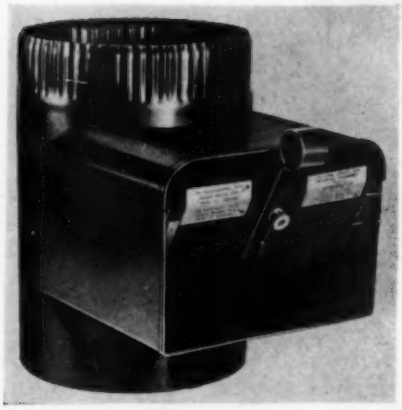


The slightly rounded shank provides strength for driving. The shoulders prevent penetration beyond the thickness of the insulation and the special lock stamped into the shank locks the clip securely in place. The pointed shank will penetrate any metal thickness up to 18 gauge. Of importance to contractors is the fact that no special tools or equipment are required for use with the clips. In application, mechanic need only hold the insulation sheet in place, push the clip into the insulation and then drive it home with a hammer.

Lexington Supply Co., 102 Lexington Ave., Cleveland, Ohio.

Draft Control 277

The type U Windmaster draft control works equally well for horizontal or vertical flue pipe, according to an announcement by Skuttle



engineers. When changing from horizontal to vertical, it is only necessary to remove the adjusting nut, shift the counter-weight from the horizontal to the vertical stud. No other change is needed. The shank of the counter-weight is calibrated for horizontal installation on one side—for vertical on the other.

More accurate control of the draft is made possible.

Skuttle Mfg. Co., 4099 Beaufait, Detroit 7, Mich.

Barn Ventilator 278

An electrically-powered, thermostatically controlled ventilation system has been developed to eliminate excess humidity in dairy and stock barns in cold weather.

It provides draft-free, fresh air for barns accommodating as high as 40 animals. It consists of a 24 in. direct-connected fan, a 1/6 hp, two speed motor, an automatic outlet shutter, and outlet hood.

Holcomb & Hoke Mfg. Co., Inc., 1540 Van Buren St., Indianapolis, Ind.

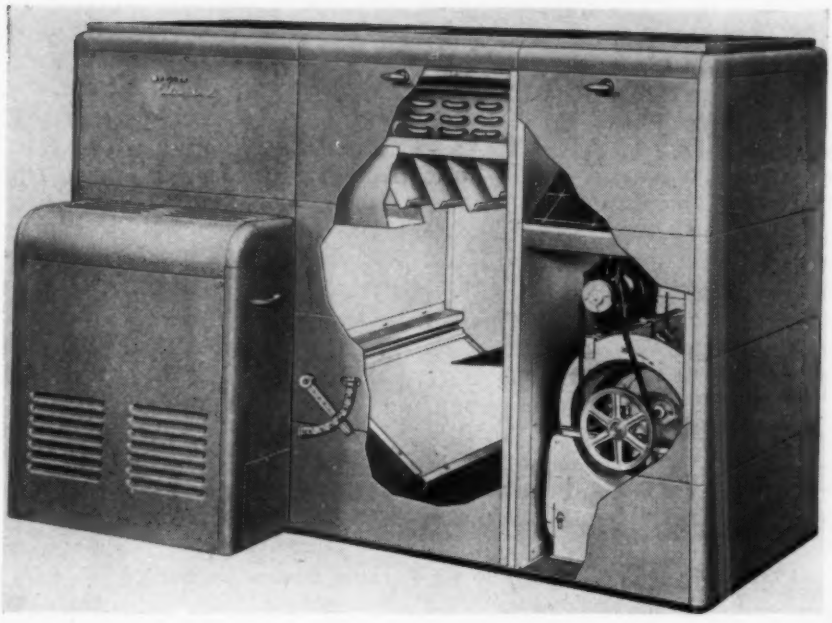
SlitShear & RodKutr 279





Two new accessories for the sheet metal shop have been placed on the market under the trade name "Artmire"—one is the quarter inch slit-shear and the other the Rodkutr which will handle rods from one-sixteenth inch to a quarter inch. Distribution channels for these products have not been completely established and dealers' inquiries for exclusive territory would be welcomed by the manufacturer.

Meyer Sheet Metal Machinery Co., 1928 Santa Fe Ave., Los Angeles 21, California.



Modular Furnace 280

The Modular Coordination system of residential construction has recently been developed to cut costs. Now a Modular Furnace has been announced which allows the homeowner to buy a basic heating system —the square gravity furnace—and build it into a complete air conditioning plant.

As shown in the photo, the Modular units consist of: the gravity furnace with square casing; a gas or oil burner (behind the vestibule); forced circulation units for filtering and humidifying warm air; cooling unit with by-pass arrangement for controlling summer humidity; vestibule for enclosing burner and controls.

Interchangeability of parts and accessories reduces manufacturing costs and cuts dealer inventory and warehousing costs.

This Modular Furnace will be exhibited at the 9th International Heating and Ventilating Exposition, at the International Amphitheater, Chicago, Jan. 24-28.

L. J. Mueller Furnace Co., 2005 W. Oklahoma Ave., Milwaukee 7, Wisc.

Velocity Meter 281

The Airite grille velocity meter for indicating the velocity of air movement in an open space, for example, air velocity at the face of a supply or return air opening of warm air heating systems, will measure air movement from 0 to 1200 fpm.



Velocity is indicated directly in fpm on a calibrated scale by positioning the meter squarely against the air flow.

Bacharach Industrial Instrument Co., 7000 Bennett St., Pittsburgh 8, Penn.

Motors 282

Instrument and timing motors—synchronous and non-synchronous —are available for heaters, fans, evaporators, dehumidifiers, timing relays, valves and voltage regulators.

Two self aligning oil retaining, bronze bearings, held in zinc bearing blocks and surrounded by a felt wicking saturated with oil, support the shaft.

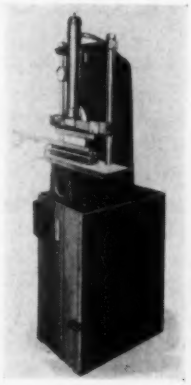
Motors can be assembled for either clockwise or counterclockwise rotation.

Motors can be wound for any usual voltage and frequence, ac only.

Gleason-Avery, Inc., Auburn, N. Y.

Press Brake 283

A hydraulic press brake makes 90 deg bends in mild steel. Ten ton model handles 18 ga. stock 3 ft long, 14 ga. stock 2 ft long, 10 ga. 1 ft long. Twenty ton unit handles 12 ga. 3 ft long; 30 ton 10 ga. 3 ft long.



A dual cylinder model, providing pressure down and up, is recommended for punching, broaching, pressing, etc.

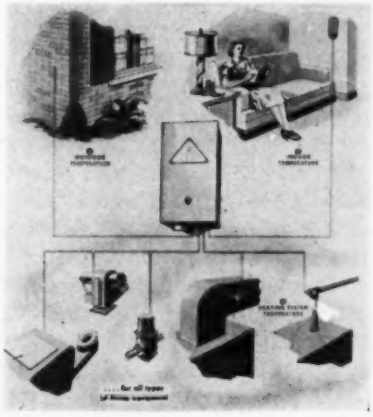
There is a 9 in. throat between guide rods which are 20 in. apart and 3 in. throat from guide rods out.

Unit is converted to a hydraulic press by removing cross rods, tie rods and bed. Equipment includes pump, motor, cylinder, gauge and all necessary connections.

The Munton Mfg. Co., 9400 W. Belmont Ave., Franklin Park, Ill.

Control System 284

The Three-Point Controller measures outdoor, indoor and heating system temperatures (temperature of air in ducts). All three are connected to an electronic amplifier which translates the temperature measurements into controlling action whenever a temperature change takes place at any one of the three control points.



The electronic amplifier "telegraphs" to the source of heat the proper relationship between the temperatures, so that the heat input is constantly adjusted to compensate for the heat loss.

Johnson Service Co., 507 E. Michigan St., Milwaukee 2, Wis.

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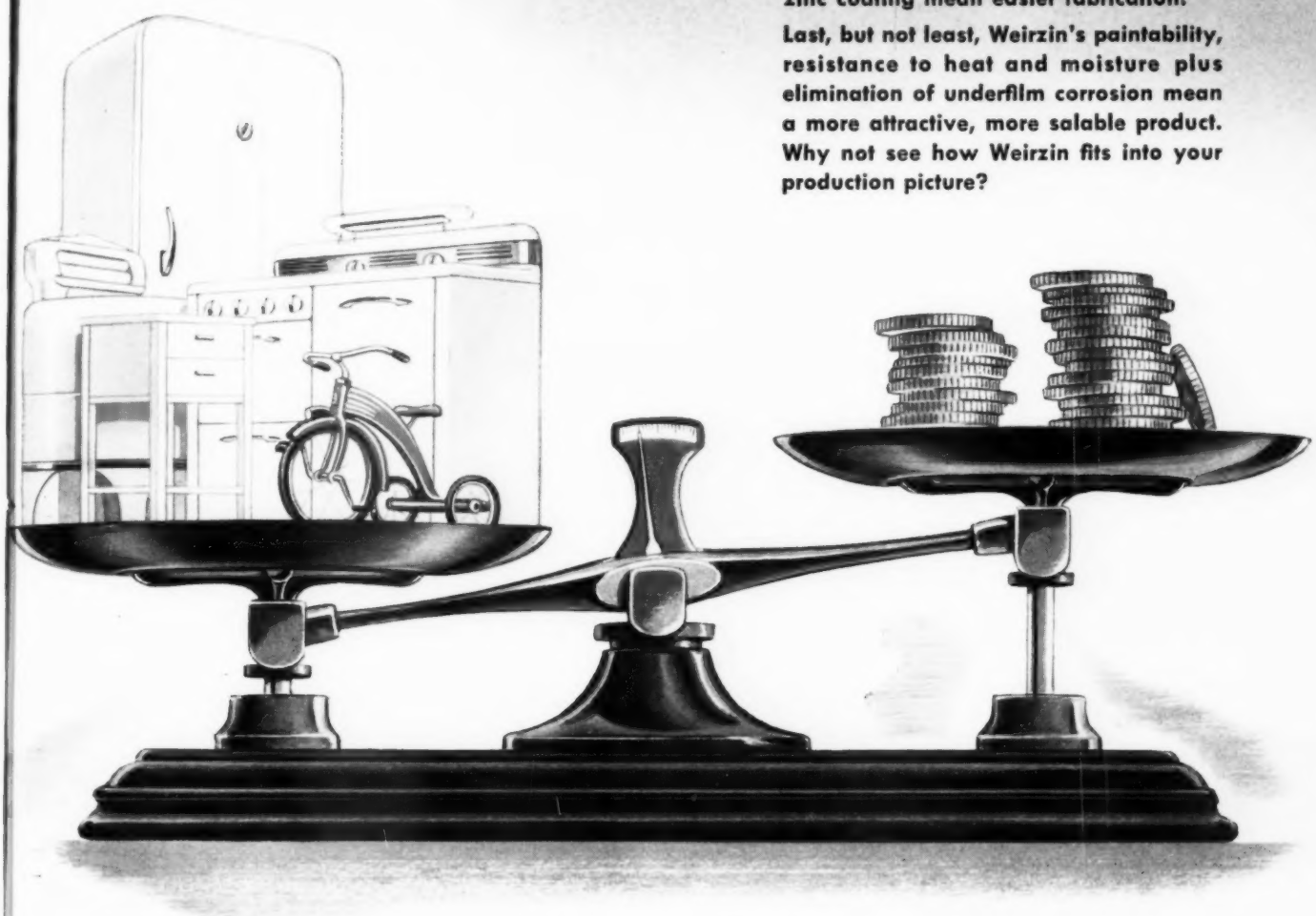
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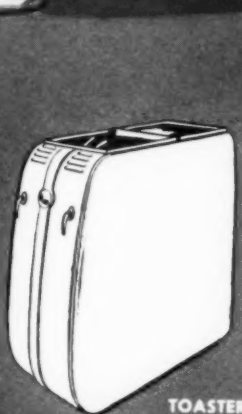
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"Sunny" MOR-SUN, that roly-poly little chap with the infectious grin that has been telling you about MOR-SUN furnaces for some time, herewith issues you a good-natured challenge.

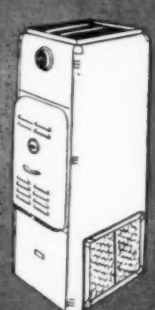
He asks you to send in for MOR-SUN literature, then to take the facts about MOR-SUN and compare them point by point with any other equipment on the market.

"Sunny" wants you to consider the beauty of the exterior, which makes your selling job easier. He wants you to examine the simple but efficient heat exchanger (with no baffles or hokus-pokus). He wants you to check the gauge of the steel, the make and size of controls and fittings, the accessibility of parts that may require service.

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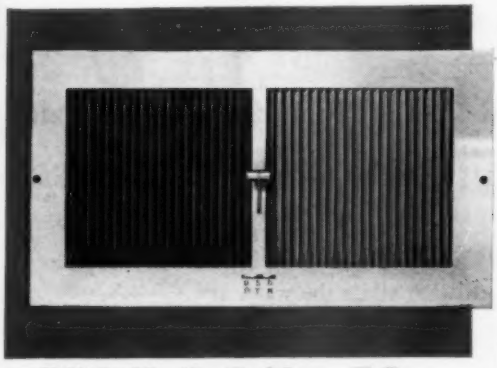
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PAYROLL SAVINGS MAKES EMPLOYEES MORE CONTENTED

In General Motors' My Job Contest, approximately 15,000 GM men and women gave the Payroll Savings Plan as one of the reasons they like their jobs!

PAYROLL SAVINGS CUTS ABSENTEEISM

A survey made by a smaller company in Minnesota showed that during a recent three-month period employees not on payroll savings were absent almost 2½ times more frequently than those who were on the Payroll Savings Plan. Further proof that payroll savings cuts absenteeism!

PAYROLL SAVINGS REDUCES ACCIDENTS

Records at our eleven Navy Yards show that, as participation in the Bond program increases, accident frequency and accident severity decline. When participation at the Norfolk Navy Yard climbed to over 90%, accident frequency declined over 50%, and the accident severity index dropped to 1/6 its former level!

Hundreds of companies are reporting benefits like these! Obviously, they add up to increased production.

What's more, the Payroll Savings Plan is a powerful weapon against inflation. Every Savings Bond dollar built up in the Treasury retires a dollar of the national debt that is potentially inflationary. That's good for the country's future—which means it's good for *your company's* future.

And, of course, it's good for the employee's future, because the Bonds pay $4 at maturity for every $3 invested.

If your company has the Payroll Savings Plan, make sure you and your employees are getting the most out of it! If you haven't yet installed the Plan, you're missing something! For facts or help, call your Treasury Department's State Director, Savings Bonds Division.

The Treasury Department acknowledges with appreciation the publication of this message by

AMERICAN ARTISAN

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council.

NEW LITERATURE

Use Coupon on Page 102

Control Panel 352

The Electronic flame failure safety control panel is a sequence control and a combustion control combined with a burner operating relay, an ignition transformer, a fused switch, a single pole switch, and a 3 in. gutter mounted on a heavy steel panel complete with operating instructions.

A 4 page folder illustrates and describes this panel, a unit designed so that the burner can not operate unless a pilot flame of sufficient size to ignite the burner is present and the unit itself is functioning.

Haney Gas Burner and Engineers, 909 S. Myrtle Ave., Monrovia, Calif.

Furnace 353

A two page folder illustrates and describes The Challenger furnace—all-steel, arc-welded construction for coal, oil or gas firing.

Rated at 75,000 Btuh at the bonnet, The Challenger is 30 in. across the front, 36 in. on the sides, and 60 in. high. Specifications are included.

Wheeling Furnace Corporation, Martins Ferry, Ohio.

Combination Unit 354

A pamphlet has been published which gives the engineering details of the Dual-A-Fire conversion burner and forced warm air furnace which was introduced at the recent AGA Convention in Atlantic City. This unit is a combination atmospheric gas burner with high-pressure gun type oil burner, fully automatic, equipped with electrical ignition and an exclusive damper feature which changes the stack condition, depending upon the type of fuel being used. The unit is now being installed on the lines of ten utilities and negotiations are under way with many more.

Automatic Firing Corp., 6504 Olive Blvd., St. Louis, Mo.

Sales Manual 355

A 12 page manual, entitled "Life Begins at 70 Degrees," is a sales tool illustrating the seven basic factors which provide full comfort and health protection in the modern well-designed heating system and showing how each contributes its share toward ultimate and complete satisfaction.

The booklet has been written and illustrated along the most simple and fundamental lines so that the average homeowner can readily understand all seven of the basic factors. The material is based on exhaustive laboratory and field studies.

Jones & Brown, Inc., 441 Sixth Avenue, Pittsburgh 19, Penn.



"Duty-Designed" means these completely new Timken Silent Automatic heating units



are *designed right, built right, priced right* to give small homes the finest in quiet, dependable, economical heat.

Right for the builder!
Right for the home owner!
Right for the dealer!

Where every foot of cubage counts—and where *quietness plus reliability* count most of all—that's where Timken Silent Automatic Dealers are reaping big profits with "Duty-Designed" oil heating equipment for small homes!

It's made specifically to fit the job in every way—*ultra-compact* for vital space conservation; *supremely quiet* for utility room installations; *completely dependable* for long-lasting, trouble-free service; *competitively priced* to provide top-quality equipment at budget cost.

Operating economy is also in keeping with small home needs. This Timken Silent Automatic "Duty-Designed" equipment is fired by the same *wall-flame* type of burner that has a 20-year record for thrifty efficiency. Fuel oil savings up to 25% or more are commonplace.

Here's a line that's "Duty-Designed" for dealer profits — the Timken Silent Automatic line!



Newly created to bring to small homes the finest in winter air conditioning, the Timken Silent Automatic Hi-Furnace combines in one space-saving, fully-integrated unit a wall-flame oil burner, furnace with radiator, blower, air filters. Automatic humidifier is extra optional equipment.



HERE IS THE FAMOUS WALL-FLAME OIL BURNER—HEART OF EVERY TIMKEN SILENT AUTOMATIC "DUTY-DESIGNED" UNIT!

The Timken Silent Automatic Wall-Flame Oil Burner is the only type of power burner capable of operating at *continued high efficiency* at the low oil rates demanded by small homes. And it's whisper-quiet, too—as proved by decibel meter tests.

Other "Duty-Designed" units include Lo-Boilers, Hi-Boilers, Coil and Tank Type Water Heaters, and regular Oil Furnaces.

TIMKEN *Silent Automatic* OIL HEAT

TIMKEN SILENT AUTOMATIC DIVISION
The Timken-Detroit Axle Company • Jackson, Michigan

Accepted A.S.A. Standard

There is only ONE

Draft-O-Stat

Trade Mark Registered

BAROMETRIC DRAFT CONTROL

— and HOTSTREAM makes it!

Draft-O-Stat has for many years been the standard barometric draft control mechanism for boilers, furnaces, oil burners and stokers. Hundreds of thousands of successful installations on domestic, commercial and industrial heating equipment have established its leadership in the field.

The Model "B" Draft-O-Stat with all-steel construction has been designed for greatest efficiency. It insures a steady, unchanging rate of draft in the chimney, providing maximum utilization of furnace heat. Top performance and long life is insured by the features shown below.



Model "A" Draft-O-Stat (original design) available in domestic sizes 14" to 20"; commercial sizes 16", 18", 20" and 24"; industrial sizes 24", 30" and 36".

INSIST ON **Draft-O-Stat**
FOR BEST RESULTS ON EVERY HEATING INSTALLATION

The HOTSTREAM *Heater Co.*

2363 EAST 69th STREET • CLEVELAND, OHIO

Manufacturers of water heaters and draft controls

NEW LITERATURE

Use Coupon on Page 102

Heating Booklet 356

"Automatic Heating with Gas, LP Gas or Oil" is tne title of a 12 page (8½ x 11) booklet covering automatic floor furnaces and water heaters burning these fuels.

Low cost residential heating is discussed and the floor and dual wall type heaters are illustrated with accessories, and specifications. Two pages are devoted to water heaters.

The Coleman Co., Inc., Wichita 1, Kansas.

Solder Bulletin 357

A solder bulletin is available with points to consider in determining solder grade and size for a given job, melting points and feet per pound of various sizes and grades, and other information.

Illustration and description of the improved Divco acid core solder with non-liquid flux, and Divco Rosin core solder with the rosin Dimer flux are included.

Division Lead Co., Dept. 119, 836 W. Kinzie St., Chicago 22, Ill.

Data Book 358

The latest edition of the Rivnut Data Book has just been published by Goodrich. The Rivnut is a blind fastener which can be used either as a rivet or nut plate and has been widely used in the aeronautical industry as well as for a variety of other operations.

B. F. Goodrich Co., Akron, Ohio.

Blower Wheels 359

A new pamphlet being sent to dealers describes the Burden blower wheels and blowers as well as the method of fabrication of these products. It discusses the electronic balancing operation which is performed on all blades and blowers as well as the new method of fabrication of Burden blower wheels which involves no welding or rivets.

Burden Co., 1000 N. Orange Drive, Los Angeles 38, Calif.

Nomographs 360

To provide an easy and accurate means to determine the percentage of heat loss in the burning of fuel gases of domestic space heating furnaces, the engineering department of Surface Combustion Corp. has prepared a group of four nomographs. These charts show the relationship between the carbon dioxide content of the flue gases, the temperature rise of the flue gases, in degrees F and the flue loss in percent.

Nomographs have been widely applied in engineering for the concise presentation of the relationship between

three or more varying quantities. They are especially useful for presenting the relationship when it would otherwise require complicated equations or hard-to-read charts for expressing the same information. These nomographs clearly depict the relationship between the above three factors for the following fuels—manufactured gas and natural gas; propane gas and butane gas; carburetted water gas, high and low specific gravity and No. 1 and No. 3 Diesel fuel (also applicable to domestic furnace fuel oil).

Surface Combustion Corp., Janitrol Division, Toledo, Ohio.

Stoker Coal Research *361*

A technical booklet has been published which deals with the effect of coal size on combustion characteristics of a domestic stoker. The objective of the research was to determine the effect of the following factors on the combustion characteristics of domestic stoker coal: top size, removal of minus-10 mesh coal, "loading" the coal with fines, and preparing the stoker coal from crushed nut instead of screenings. Restricted to Illinois coal, the study dealt thoroughly and adequately with all the factors that enter into any research in such a field. Economy, as well as the various combustion characteristics, was analyzed in the study.

Report of Investigations—No. 133, Division of the State Geological Survey, State of Illinois, Urbana, Ill.

Calendar *362*

A request on a letterhead will bring any reader the 1949 Levow calendar. This calendar has a series of valuable engineering tables on the last page including: diameters, circumferences and areas of circles, contents of round tanks, data on wore gauges and expansion and contraction, slopes of roofs and weights and measures.

David Levow, 308 W. 20 St., New York, N.Y.

Roofing Manual *363*

A new comprehensive book entitled "Asphalt Roofing and Accessories" is described as being a how-to-do-it manual rather than a piece of sales literature. Its purpose is to provide helpful, practical and authoritative information to those who sell and use asphalt prepared roofings with the purpose that the ultimate users of these products may get maximum performance for their roofing dollars. To those engaged in the distribution and sale of these products, the book will serve as a dependable guide to good practice in the selection and application of asphalt roofings.

"Asphalt Roofing Accessories," J. L. Strahan, published by Asphalt Industry Bureau, 2 West 45th Street, New York 19, N.Y. Price—35c.

Construction Bulletin *364*

A circular describing research in simplified construction methods to reduce building costs has been issued. Undertaken by the Small Homes Council of the University of Illinois, the study was financed by funds



JOHN ZINK'S NEW

"Whisper Quiet"

UNIT HEATER

•

Especially Designed
For Installation Requiring
Quiet Operation

More Head Room — Compact Design and More Heat From Gas Burned. A. G. A. approved for natural, manufactured, mixed or L P gases. Fully equipped with automatic Controls.

HURRICANE MODEL AVAILABLE FOR INDUSTRIAL INSTALLATIONS

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FOR

Quality Products
Prompt Service
Profitable Cooperation

Buy from a Herman Nelson Distributor like Hajoca Corporation of Philadelphia, Pa.



C. C. Lowry,
Vice President — General Sales
Hajoca Corporation
Headquarters at
Philadelphia, Pennsylvania

The friendly feeling that exists between The Herman Nelson Corporation and carefully selected Distributors, including Hajoca Corporation with its many branches, is based on a close working arrangement and service as well as products. Around the nation, wherever Herman Nelson Heating and Ventilating Products are sold, Dealers have discovered that the combination of quality products, prompt service and intelligent cooperation from Herman Nelson Distributors, results in increased business and satisfied customers.

Superiority of Herman Nelson products can be traced to 42 years' experience. During that time, Herman Nelson engineers have developed a mastery of workmanship and design which has resulted in products with a new high standard for performance and durability. Thousands of satisfied customers best illustrate the fact that the Herman Nelson nameplate means unmatched excellence of product.

As important to the Dealer as the products themselves is the matter of delivery. Herman Nelson Distributors maintain stocks of both products and materials required for installation so you can serve your customers promptly.

Dealers all over America have commented favorably on the advertising and sales promotion material and comprehensive engineering data furnished by Herman Nelson. This sales and installation assistance will mean added profits to you as a dealer.

Yes, quality products, prompt service and intelligent cooperation — a trio of "profit-getters" — have built an enviable reputation for Herman Nelson, its Distributors and Dealers everywhere. They will do the same for you. Get the details from your nearest Herman Nelson Distributor today.



THE HERMAN NELSON CORPORATION
Since 1906 Manufacturers of Quality Heating and Ventilating Products
MOLINE, ILLINOIS

NEW LITERATURE

Use Coupon on Page 102

from the United States Department of Commerce through its Office of Technical Services. The industry engineered house, developed by the Producers' Council and the National Retail Lumber Dealers' Association was chosen for the study. This house had been designed specifically to cut building costs to the bone and all time-saving factors that were possible were included in the construction. Six houses were built, three of frame construction, and three of masonry. The circular gives full details on the savings accomplished by the new construction methods.

Small Homes Council, Circular E 2.1, University of Illinois, Urbana, Ill.

Solder Guide 365

A condensed four-page catalogue of Alpha products contains a comprehensive solder selection guide, which lists the 16 metals that are most frequently soldered. The pertinent information given about them includes their order of solderability, together with recommendations for the best flux core solder or solder and flux available for suitable soldering operations and also for the flux type most desirable when an external flux is used.

Catalogue No. 201, Alpha Metals, Inc., 363 Hudson Ave., Brooklyn 1, N.Y.

Equipment Catalogue 366

A complete new home equipment catalogue folder has been made available to wholesalers and contractor dealers. The folder illustrates Oilux oil burners, forced air oil furnaces, oil and gas fired boilers, forced air and gravity coal furnaces, gas conversion burners and forced air gas furnaces. Individual specifications and capacities are given.

The Oilux Company, 2200 Dwenger Avenue, Fort Wayne, Indiana.

Fan Booklet 367

Latest designs in ILG self-cooled motor propeller fans are featured in a new catalogue just released. Three types of modern style propeller fans are featured in the new catalogue in a range of sizes and capacities to handle the requirements of most exhaust fan applications. All types of accessories are shown for the three lines of fans, including standard and motor operated automatic shutters, pent houses and guards. Also fans are illustrated for use in photographic dark rooms and for man cooling applications. One section of the catalogue is devoted to home ven-

tilation. Here are illustrated portable and built-in fans for night cooling purposes plus a complete line of electric ventilators for kitchens, laundries, bath and recreation rooms.

ILG Electric Ventilating Co., Chicago, Ill.

Stainless Steel Data 368

Armco has published a booklet which deals with stainless steel roof drainage equipment, using both photographs and detailed drawings. It discusses durability, freedom from replacement, strength, abrasion resistance and elimination of bleeding. It shows many details of architectural installation and illustrates standard parts and fittings. Another section of the booklet describes tested procedures for fabrication and installation.

Armco Steel Corp., Middletown, Ohio.

Direct Mail 369

A series of direct mail releases are being sent out by Mor-Sun to acquaint dealers with the various features of the Mor-Sun units. Engineering features of the unit are discussed in some of the pamphlets as well as the fact that Mor-Sun units are factory-assembled and thus save the dealer money on installation. All these attractively designed mailing pieces make adroit use of color.

Mor-Sun Steel Products, Inc., Buffalo 7, N. Y.

Heater Information 370

A data sheet has been published which gives descriptive information and capacities of the National heaters which range in size from 250,000 Btuh to 1,500,000 Btuh. Applications are illustrated.

National Heater Co., St. Paul 4, Minn.

Firebox Handbook 371

A new edition has been published of the B & W Firebox Handbook on the design and construction of modern fireboxes for domestic and small commercial oil burners. This handbook offers essential information on the selection of suitable material and the design and installation of fireboxes for trouble-free and economical heating. This latest edition has been expanded to give data on certain commercial installations as well as to cover the special problems arising from the heating of the smallest homes.

Bulletin R 20 B, Refractory Division, Babcock & Wilcox Co., 85 Liberty Street, New York, N. Y.

Flux Stick 372

A new pamphlet describes the Amco fluxing stick which is a 100 per cent active flux in stick form suitable for general soldering work. Binding and wax have been eliminated from the stick and the result is a completely active and clean flux.

Department M, American Solder & Flux Co., 2152 East Norris Street, Philadelphia 25.

IT'S TIME TO LOOK AT '49

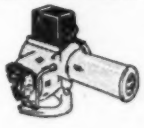
Have you been selling a

PROFITABLE

OIL FIRED HEATING

LINE?

Conversion Burners



Water Heaters



Warm Air Conditioners



Oil Fired Boilers



Now is the time to take inventory of your profits for the past year. Have you been selling PROFITABLE oil heating equipment.

Is your heating line a complete line?

The matter of dealer profits has first attention in every General Automatic dealer franchise.

A few valuable protected territories are still open.

GET IN TOUCH WITH US NOW!

GENERAL Automatic

Est. 1924

Checks first . . . with the finest.

GENERAL OIL BURNER CORP.

2300 Sinclair Lane Baltimore 13, Md.

INDUSTRY ITEMS

F. X. FESSLER has been named manager of the Dayton District Office for Penn Electric Switch Co., according to an announcement by R. H. Luscombe, general sales manager. He succeeds E. A. Price, who was made manager of the company's New York District Office. Mr. Fessler has an extensive background of sales engineering and field experience, and is well versed in the application of controls for heating, refrigeration and air conditioning.

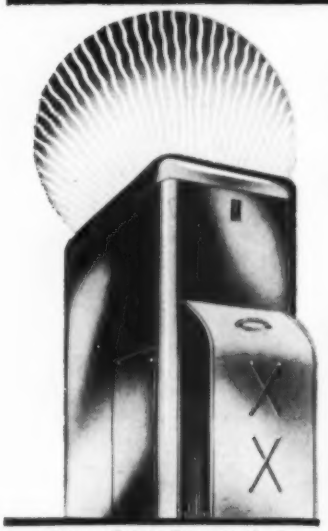
ESTABLISHMENT OF A PACIFIC COAST DIVISION of Owens-Corning Fiberglas Corporation, and the appointment of L. R. Kessler as its general manager, were announced recently by Harold Boeschenstein, president. Establishment of the separate division is designed to handle construction, manufacturing and sales operations for the company in the Pacific Coast area and neighboring Western states, while the research, development, engineering and other departmental services of the company will be made available to the Pacific Coast Division.

ANOTHER INSTANCE of round the world use of Mueller Climatrol heating equipment is the recent shipment of 20 oil fired winter air conditioners by the L. J. Mueller Furnace Co., Milwaukee, Wis., to Tokyo, Japan. These units are to be installed in a housing project for Northwest Air Lines personnel. Though far away from the every day modern conveniences of the U. S. A., personnel of the Northwest Air Lines will enjoy all the comforts of home with modern winter air conditioners heating their homes in the Japanese capital.



WILLIAM J. MCGRAW, manager of electric tool sales in the New York territory, has been appointed manager of the Cleveland branch of the Independent Pneumatic Tool Co., Aurora, Illinois. He will be succeeded by Ed. B. Rosell, electric tool service engineer at the Chicago branch territory, it was announced by W. A. Nugent, Thor executive vice president.

WHEN YOU THINK OF HEATING EQUIPMENT—

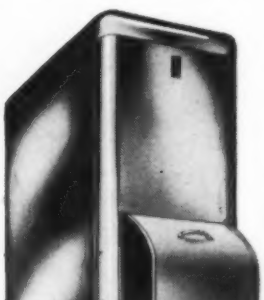


Remember

XX CENTURY

ZEPH-AIR

With It's 54 Years of Engineered Efficiency in The Heating Field





OIL Quiet, Economical, Space Saving, Zeph-Air Oil Burning Furnaces, Easy To Operate, Easily Installed.

GAS Completely Automatic Air Conditioned Gas Furnaces With The Famous Gear Shaped Cast Iron Radiation Surfaces.

COAL You Buy Quality In Zeph-Air Coal Furnaces. No Costly Service Calls To Worry About.

It Pays To Push Zeph-Air Heating Products — Thousands of Satisfied Users All Over The Country Remember The Dependability And Reliability Their Zeph-Air Furnaces Stand For.

When a Zeph-Air Furnace Has Ended Its Long-Life and Is Ready To Be Replaced — The Customer is Almost Sure To Say — "Years of Uninterrupted Service," "Install Another Zeph-Air."

Cash In On This 54 Years of Customer Satisfaction — Stock Up On Zeph-Air Heating and Weather Conditioning Equipment — Now.

THE XXTH CENTURY HEATING & VENTILATING CO.

96 IRA AVENUE AKRON, OHIO

Richard J. Blum, Sr.

1886-1948

R. J. Blum, Sr., co-founder and president of the Kirk & Blum Mfg. Co., Cincinnati, Ohio, manufacturers and designers of dust-collecting and fume-removal systems, died at his home in Cincinnati on Monday, October 18, 1948.

Going into semi-retirement 18 months ago because of a heart ailment, Mr. Blum still made occasional visits to his business.

Mr. Blum was born October 9, 1886 in Cincinnati. Nineteen years later he met the late Sylvester W. Kirk, with whom he organized the company, which has grown to become one of the nation's leading fabricators of dust-collecting and fume-removal systems. The two first met when Mr. Blum answered an advertisement in 1905 for a worker at the old Cincinnati Exhaust and Blowpipe Co. There he met Mr. Kirk, who two years later in 1907, approached Mr. Blum with the idea of forming a company. Mr. Blum became president of the firm three years ago, succeeding to that position upon the death of Mr. Kirk.

Surviving him are his widow, Mrs. Verena L. Blum, and son, R. J. Blum, Jr., vice president of the company.

Charles B. Charmartz

1897-1948

Charles B. Charmartz, Detroit District Manager of the Janitrol Space Heating Division, Surface Combustion Corp., died October 2nd, 1948 of coronary thrombosis. Interment was held at White Chapel Memorial Park, Bloomfield Hills, Michigan.



C. B. Charmartz

Mr. Charmartz was an outstanding personality in the field of retail specialty selling prior to his assuming management of Janitrol Detroit wholesale branch in 1936. Early in his career Mr. Charmartz was New York district manager for Eureka Vacuum Cleaner Company, then general sales manager of the Bonded Radio Corp. and dealer promotion manager, Radio Division, General Motors Corp. In 1931 he joined the Surface Combustion Corp., Toledo, Ohio as manager of the Heatmaster retail sales branch, Rochester, New York.

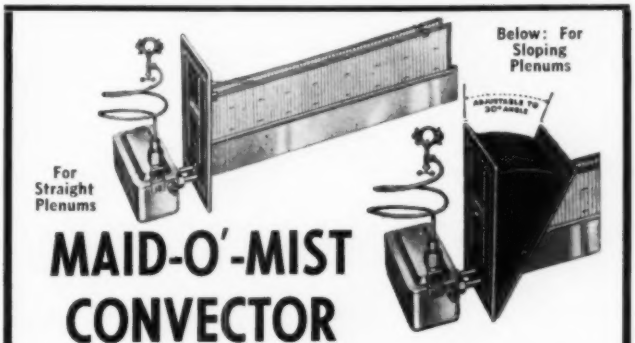
LINCOLN PIERCE of the New York Sales office of the American Radiator & Standard Sanitary Corp. has been promoted to manager of the Boston sales office according to an announcement made by E. D. Couch, vice president and general manager of sales.

Nelse Hervan of the Boston sales office was simultaneously promoted to assistant sales manager.

Mr. Pierce succeeds E. B. Lane who died September 16th. The new sales office manager has been associated with American Standard for the past ten years. Mr. Hervan who has been associated with the Boston sales office of American Standard since 1929, has been in the company's employ since 1910.

Now They Come

COMPLETELY ASSEMBLED



MAID-O'-MIST CONVECTOR AUTOMATIC HUMIDIFIERS

Installation Completed in Minimum Time

Cut small opening in the plenum, snap in Maid-O'-Mist Convector, make water connections—*that's all!*

Yes, aside from water connections, the whole job takes decidedly LESS TIME, because:

First, Convectors are equipped with our patented self-locking front plates.

Second, we now furnish Convectors *completely assembled*—ready for installation as they come from the shipping containers.

BUT PERFORMANCE is the real reason why you should handle Maid-O'-Mist Convectors. It's *true* you can give your customers a better deal. It's also *true* you can *make money*—for Convectors are LOW priced.

14 sizes, two designs as shown above — available from your jobber. It will PAY you to find out!

Amazing Performance!

(A) FLASH ACTION—copper trough transmits heat to water NINE times faster, and—

(B) 30% MORE evaporating area — you can guarantee *adequate humidity* on every type of installation.

(C) 60% LESS air restriction — very small units; practically no throttling of heat flow through plenum.

MAID-O'-MIST INC.

3213 N. PULASKI RD.
CHICAGO 41, ILLINOIS

AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

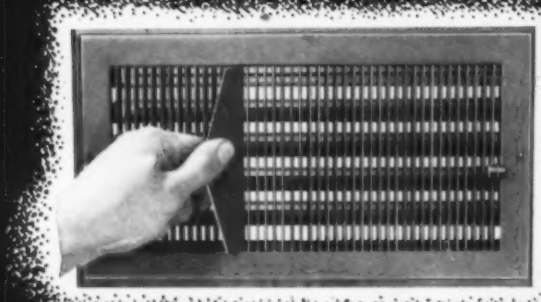
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U S America's Favorite REGISTERS



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GRAVITY BASEBOARD REGISTERS



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4-WAY FLOW A-C REGISTERS

Send for Latest Catalog and Price List

UNITED STATES REGISTER CO.
BATTLE CREEK, MICHIGAN
MINNEAPOLIS • KANSAS CITY • ALBANY

INDUSTRY ITEMS

National Air Conditioning Incorporated, division of National Radiator Company, Johnstown, Pennsylvania, next month will announce its plans for marketing on an expanded basis the Teg Conditioner which it has been manufacturing the last two years under an exclusive license with Walter Fleisher, air conditioning engineer and inventor of the conditioner.

Marketing of these units was carried on through a few warm air furnace manufacturers and distributors. Meanwhile laboratory work to study its humidification, air cleaning, and air sterilization properties was continued. Last spring Professor B. H. Jennings, who has done considerable research and has written several papers on the use of triethylene glycol, ran laboratory tests to study its killing effect on bacteria.

One of the attractions of the Atlantic City Gas Appliance Manufacturers Association show was Richmond Radiator's Uncle Stokemore and his ancient Richmond wood burning stove. This stove, model of 1868, once was the sole source of heat for a small New England farm house until an ad ran in the local paper in Norwich, Connecticut, original home of Richmond, offering a reward for the oldest Richmond stove that could be found. Now it travels around the country with Richmond exhibits and trade shows, for it serves as tangible evidence for the Richmond slogan "We have come a long way since then."



Also shown was Richmond's new Two-Fuel winter air conditioner. This addition to the Richmond heating line is the answer to the perplexing question as to whether oil or gas is to be the fuel for heating. By the use of this particular warm air furnace the contractor can install the furnace and duct work, but wait until the last moment before deciding which fuel to use. If oil is to be the fuel, all that need be done is to install the oil burner on a mounting plate and hook up the flue and supply line. If it is to be gas fired then the burner on its mounting plate is inserted into the furnace and hooked up.

ECONOMICAL, too!
double-lubricated Randall Pillow Blocks

Longer lasting, smoother running Randalls cost no more. The Randall line is complete . . . you select the pillow block that's *exactly* right for the job.

Only Randalls give the *double* protection of oil-plus-graphite lubrication. *Write for Catalog 47.*



STREAMLINER . . . One-Piece Steel Housing. For maximum air flow. Self-aligning ball housing. Single or double oil reservoir.

Randall Graphite Bearings, Inc.

Dept. 1211, 609 West Lake St. **Chicago 6, Illinois**

Save yourself TIME *and* MONEY

Order Furnace Fittings from "Made-Rite"



NO JOB can be better than the fittings you use and no fittings can be better than ours. We've always made a conscientious effort to supply the finest fittings and get them out to our customers with a minimum of time and trouble.

You'll find that dealing with us will be a pleasant and profitable experience. We have a complete line of fittings and accessories to meet your every need and we're sure you'll agree that one order will lead to many more.

Wholesale jobbing inquiries respectfully invited and will receive our usual prompt attention.



INVESTIGATE MADE-RITE CONNECTING LOCK STRIP

Patent Pending

Here's a time and material saver for speedy and air tight installations of trunk line and wall stack fittings with all the "Know How" of years of experience in the manufacture of precision "Made-Rite" fittings. Write for complete details today and you will receive our prompt attention.

"Made-Rite" Co., Inc.

10th & Monroe St. Newport, Ky.

INDUSTRY ITEMS

FIRST PRIZE OF $100 has been awarded to the Timken Silent Automatic Division of Jackson, Michigan for its winning entry in the Second Annual Protective Packaging Competition of the Industrial Packaging Engineers Association of America. The carton in which the smallest Timken Silent Automatic Wall Flame oil burner is packaged was entered in the contest and was praised for efficient interior arrangement as well as protection afforded contents.

MANUFACTURERS OF ROUND OAK ranges, stoves and furnaces, popular products throughout the nation for over three-quarters of a century, were recently awarded a certificate of public service by the Brand Names Foundation, Inc. for the seventy-seven years the Round Oak brand has held public confidence through unfailing integrity, reliable quality and fair pricing. Occasion for the award's presentation was a ceremonial banquet climaxing the centennial celebration in Dowagiac, Michigan, where Round Oak products are made.

Charles Mosher, Round Oak manager, received the certificate of recognition from Henry E. Abt, president of Brand Names Foundation, Inc., a non-profit corporation established to encourage the highest standard of product distribution. Many of Dowagiac's merchants, manufacturers and their employees were also present to witness the ceremony.



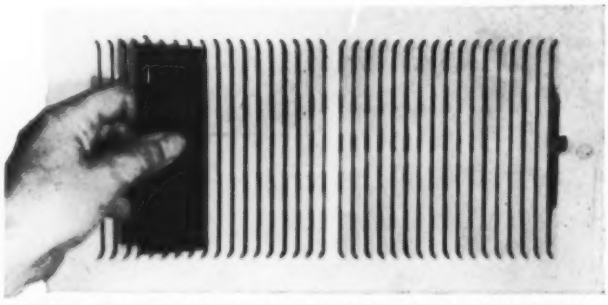
Charles Mosher left, Round Oak manager, received certificate of recognition from Henry E. Abt, president of the Brand Names Foundation.

Although the Round Oak organization was reincorporated recently under new ownership as the Round Oak Company, Inc. of Indiana, the firm continues to manufacture the same long established Round Oak line, maintaining the processes and policies of the previous company.

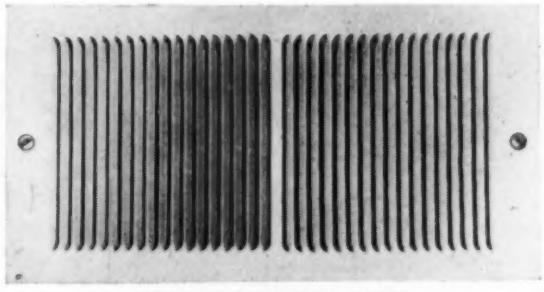
SHALLOW THIN-MAN TRADE MARK REGISTER

TEN DAY DELIVERY FOR STANDARD SIZES
(UNDER 100 PIECES)

DESIGNED FOR RESIDENTIAL AIR CONDITIONING



STYLE 8TM—SELECTIVE UP - STRAIGHT - DOWN DEFLECTION FROM SHUTTER. RIGHT AND LEFT DEFLECTION FROM FACE.

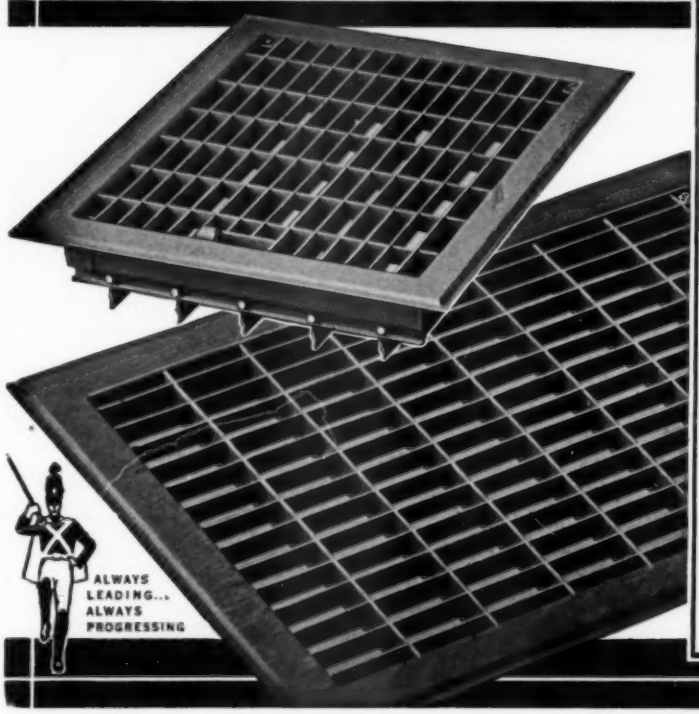


STYLE 8—GRILLES TO MATCH STYLE 8TM REGISTERS.

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INDUSTRY ITEMS

L. E. HARNISCH has joined Grant Wilson, Inc., Chicago as head of their traffic department. Mr. Harnisch was formerly with the Pennsylvania Railroad, Wabash Railroad and Trans-World Air Lines. The company has stated that the ever increasing importance of the various modes of transportation, particularly in view of current high prices and tariff complexities, puts the responsibility of traffic management on a par with manufacturing and selling.



L. E. Harnisch

W. HARRY TONNER has been made a field representative for Auer Register Co., Cleveland, Ohio according to a recent announcement by George R. Metzger, president.



W. H. Tonner

Mr. Tonner was educated at Baldwin-Wallace College and has had a long career in the heating industry. He was connected with the Elyria office of the Ohio Fuel & Gas Co. as sales engineer and also represented the Minneapolis-Honeywell Regulator Co. in a sales capacity. Mr. Tonner is slated to assist Herbert Curtis, vice president and sales manager, in general sales contact work.

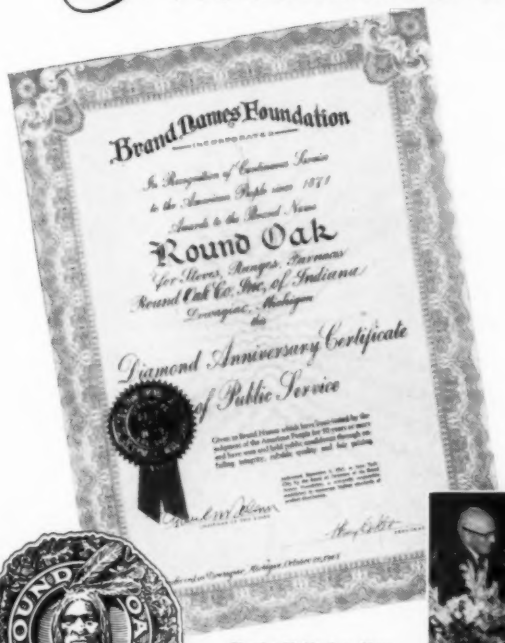
A BLACK AND GOLD PENNANT proclaiming the 100th Anniversary of C. G. Hussey & Company was recently raised to the mast at the company's plant in Pittsburgh.

Pittsburgh's only copper rolling mill and one of the oldest companies in the region, marked the occasion with ceremonies attended by the president and directors of the parent company, The Copper Range Co. of Boston, Mass. Ceremonies included a visit to the plant by the officials of both companies and a commemorative centennial dinner.

J. P. Lally, managing director of C. G. Hussey & Company said in tracing the history of his firm, that the company's first copper smelting furnace was built on the Gazzam Farm in Allegheny County in 1848 by Curtis Grubb Hussey, the firm's founder. Its first warehouse was located on what is now downtown Fifth Avenue in Pittsburgh. The company's facilities have since grown until the present plant and main offices cover approximately seven acres, practically all of which is under roof, housing the most modern of copper and brass production equipment.

Awarded to Round Oak

for 77 Years of Public Service



Members of the Round Oak organization accept this award with a great amount of pride from the Brand Names Foundation, in testimonial of 77 years of service to the consumer public.

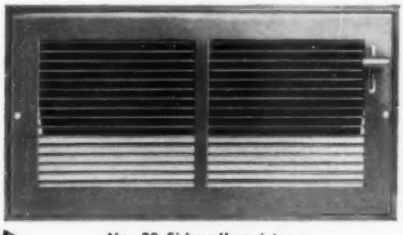
This certificate carries with it the additional honor that Round Oak products have survived with increasing importance under our system of free competition since they were first manufactured in 1871. Also that Round Oak products have won and held public confidence through designing, engineering, reliable quality, and fair pricing.

We wish to thank each and every member of our large distributing organization for their help in winning this honor. We shall continue the manufacture of Round Oak products using the same high standards as in the past, in an effort to keep your customers well satisfied.

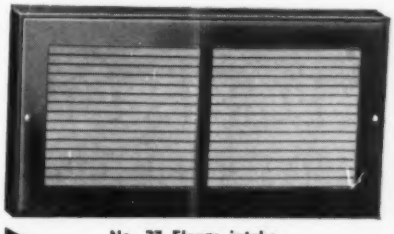


Charles H. Mosher, Manager, receives certificate from Henry E. Abt, President of the Foundation.

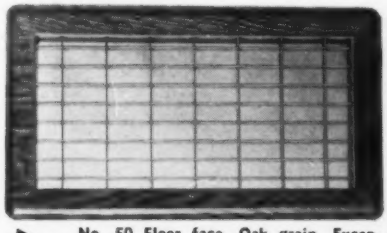
Round Oak Company, Inc.
of Indiana
DOWAGIAC, MICHIGAN



▶ No. 20 Sidewall register



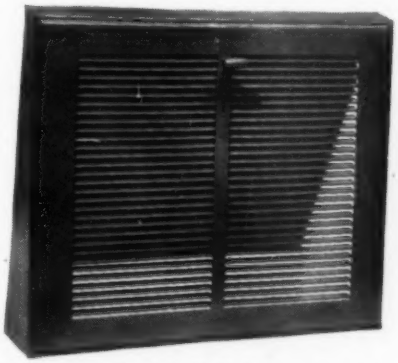
▶ No. 27 Flange intake



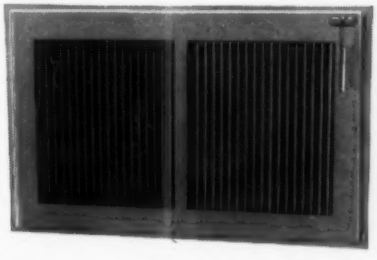
▶ No. 50 Floor face. Oak grain. Exceptionally sturdy, and very attractive.

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Here's a line of registers and grilles . . . a complete line . . . for those jobs in which maximum efficiency must be combined with architectural beauty. Midco registers and grilles are dependable; they may be set for any desired flow to suit the various conditions encountered; are equipped with piano-type hinges and "non-whistling" dampers, and are styled to suit the most discriminating tastes. Install Midco's—you're sure of a job well done and of repeat sales through satisfied customer recommendations. We'll be happy to forward more information, just drop us a postcard today.

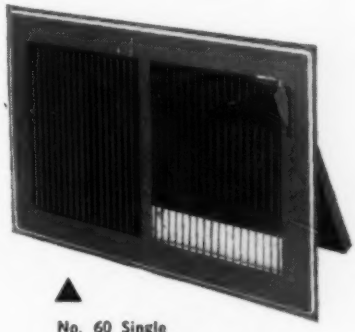


Gravity = Vertical Fin Multiple Louver—Forced Air.



▶ No. 60 Single damper vertical fin register

◀ No. 44 Gravity register—note new modern designing for more efficiency



▲ No. 60 Single damper vertical fin register (rear view)

Factory Representatives Wanted for Some Territories

MIDCO REGISTER CORP., 1059 Grand Ave., St. Paul 5, Minn.

News Summary

(From page 72)

stoppage in an effort to enforce a secondary boycott in violation of the Act. The boycott was aimed at compelling Roane-Anderson to stop doing business with the Kiser Electric Co. of Knoxville, Tenn., a non-union subcontractor, he found.

He recommended that the union be required to cease its illegal boycott activities against Kiser and to post notices announcing that it would refrain from such conduct in the future. Unless contested by one of the parties within 20 days, the Examiner's recommendations take effect as a Board order, enforceable in U. S. Court of Appeal.

Aluminum Shipments Increase

Shipments of aluminum plate, sheet and strip during the month of September amounted to 104,609,000 pounds as against 98,059,000 pounds during the same month last year. The figures for the first nine months of this year also show an increase over the same period in 1947. The totals were 772,486,000 pounds in 1947 and 975,838,000 pounds for the first three quarters this year.

These are net shipments as reported in the Facts for Industry series published by the Bureau of the Census, Department of Commerce.

Record Steel Production

ACCORDING TO THE AMERICAN Iron and Steel Institute the operating rate of steel companies having 94 per cent of the steel capacity of the industry was 99.4 per cent of capacity for the week of November 8, 1948, equivalent to 1,791,700 tons of steel ingots and castings, compared with 1,782,600 tons the previous week, 1,695,700 tons one year ago; and 1,281,210 tons for the average week in 1940, the highest prewar year.

This scheduled tonnage production will be 400 tons larger than the all-time weekly record of 1,791,300 tons in the wartime week of April 24, 1944.

GI Loans Decrease

FEWER AND FEWER VETERANS are obtaining home loans under the G.I. Bill, T. B. King, director of the Veterans Administration loan guarantee service, told home loan officals at the 56 annual convention of the United States Savings and Loan League in New York City.

He said records show that G.I. loans now number only one out of every ten new small home mortgages, compared with a one-in-four ratio during the peak period of the G.I. loan guaranty program.

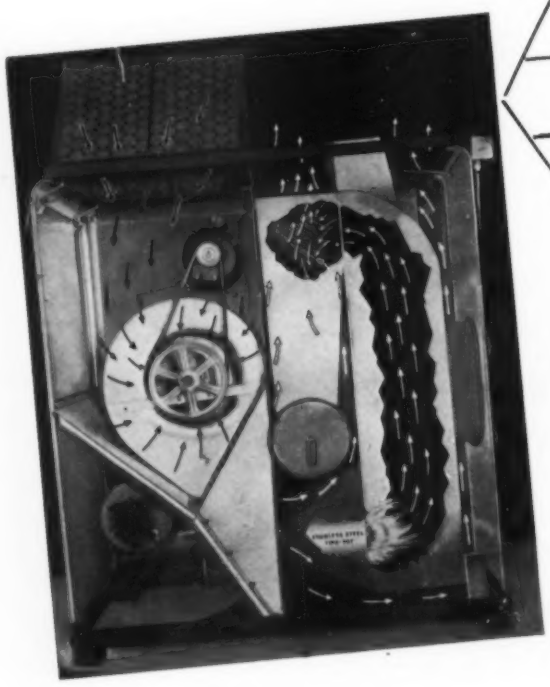
Thus, he explained, although over 1,300,000 World War II veterans solved their housing problems by buying homes with G.I. loans, their fellow veterans are experiencing much more difficulty in the present market.

The phenomenon of a decrease in the number of

COMPLETE CUSTOMER SATISFACTION!

when you install TJERNLUND QUICK HEAT

PERFECTED WINTER AIR CONDITIONING



HERE'S THE INSIDE STORY!

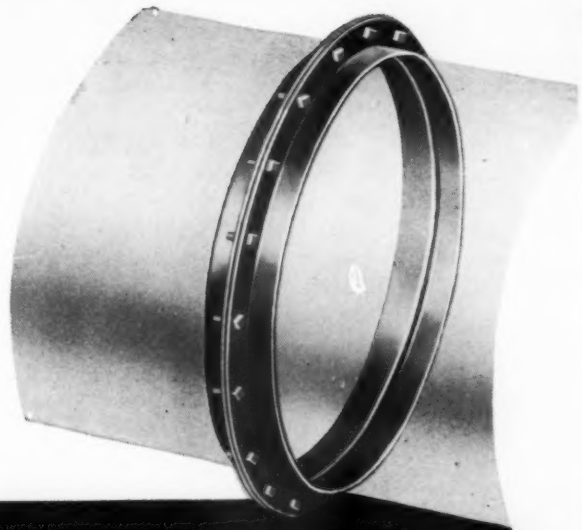
Satisfied customers build sales. It's particularly true in this field where purchases may run into hundreds of dollars and poorly installed jobs or unreliable equipment can prove costly to your reputation and subsequent business opportunities.

Take a look at this cutaway view of Quick-Heat—it shows a modern, highly efficient heating plant in operation. The air is drawn through the filters and forced around the entire heating unit including the "counter-flow" heat extracting flues. This results in complete air wipeage of all heating surfaces and clean, comfortable heat for many years.

The Tjernlund line will meet your needs for any installation . . . investigate today. We make them to satisfy.

TJERNLUND MANUFACTURING CO.

2140 Kasota Ave., St. Paul 8, Minn.



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Rolled-Rite STEEL Angle Rings

Sealed sheet metal pipe ends and tight joints—essential to every ventilating, fume disposal and dust collecting system are easily and quickly achieved with *Rolled Rite* Steel Angle Rings. They are free from distortion, accurate in all dimensions with a perfectly flat surface that assures a tight joint. Available in 6″ to 36″ diameters. Larger sizes rolled when desired.

Write for list of sizes and net price list.

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* **Moncrief Furnaces** Coal—Oil—Gas
* **International 85 - 150 Oil**
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* **Oil Gauges - Oil Filters - Oil Lifters**
* **Blowers - Humidifiers**
* **Master Blowertrol - C. A. C.**
* ***Controls** Minneapolis-Honeywell • Sampsel**
* **Western Turbine Ventilators**
* **Accurate Ventilators**
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at NO EXTRA COST

The new quick-opening set-lock assembly on the Kno-Draft Air Diffusers

Cuts installation and maintenance time

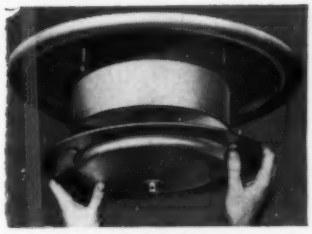
Instant Cleaning and Inspection: With the new Type HD set-lock assembly, the inner element of the Kno-Draft Adjustable Air Diffusers can be quickly removed and reinstalled while the diffuser is in place without affecting its adjustment.



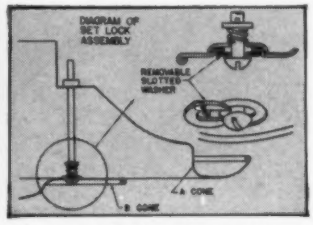
Remove cover cone (if used).



2. Press cone—slip out washers.



3. Remove inner element.



Now standard equipment.

It takes but a minute—requires no tools

The "B" cone or inner element of the diffuser is secured to the combined suspension and adjustment screws by a springloaded catch which is kept in compression by a slotted washer. The holes in "B" cone pass over the bolt heads. Just press up on cone "B" and insert or remove the slotted washers.

Visit booths 427-429 at the 9th International Heating, Ventilating & Air Conditioning Exposition, International Amphitheater, Chicago, Jan. 24-28.

FREE HELPFUL LITERATURE

☐ **Bulletin K-21:** Details on Type HD Set-Lock Assembly.

☐ **New handbook on air diffusion:** Shows how to create "custom-made" air patterns and eliminate drafts.

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veterans' home loans in the face of a high rate of new home completions stems from two main factors, Mr. King said.

The first factor has been the high and rising price level for new homes. VA estimates that the average veteran family can afford a home priced at $5,000 to $6,000, or well below the price asked for most of the new homes under construction.

The second, Mr. King said, is the four per cent interest rate—the maximum which lenders may charge veterans for loans guaranteed by VA under the G.I. Bill. Lenders are reluctant to invest in long-term loans permitting only a gross return of four per cent, he stated.

Standardizing Building Codes

AN IMPORTANT STEP toward wide-spread enactment of State legistlation which would help many communities in bringing their building codes up to date has been announced by the Housing and Home Finance Agency.

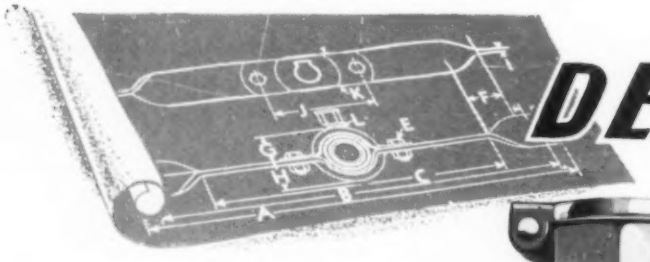
The Agency reported that suggested model legislation which would enable municipalities to avoid the excessive cost frequently involved in adopting model building codes or building code revision has been drafted under its auspices, in cooperation with the Council of State Governments, the Department of Justice and the Department of Commerce.

Drafting of this proposed legislation is the first major action of HHFA under its program for the development and promotion of improved and standardized building codes, which was authorized by the Housing Act of 1948, passed by the special session of Congress last August.

Publication of proposed ordinances in an appropriate newspaper for public notification, as often required by law, is a sound practice and the cost is nominal in most cases but it may be prohibitive, particularly for the smaller community, in the case of lengthy and involved building codes, some of which are, in effect, books of several hundred pages.

The proposed state statute would allow municipalities to adopt a model code "by reference." Under this plan, so long as the proposed codes has been made available for ready public examination, it need only be properly identified in the ordinance instead of having its full text published. Thus the element of excessive cost in connection with the adoption of codes or revisions would be eliminated. At the same time, since there would be publication of the adopting ordinance, and the proposed code would be available for ready public examination, full and adequate public notice protecting the public interest would be given.

The legislation would place upon the appropriate local official the responsibility of keeping the governing body of the municipality constantly apprised of changes that should be made in the building code from time to time. The absence of such a procedure in the past has often resulted in building codes, which were completely up to date at the time of their passage, becoming obsolete over the years.



DESIGNED for Air Conditioning

This shock-absorbing pillow block was designed by air conditioning engineers for fans, blowers and other devices requiring ***silent operation, perfect alignment, self-lubrication,*** and ***minimum obstruction to air flow.*** No other bearing provides all of these advantages.

Shown here is one of several types of mountings. We are glad to cooperate with engineers in designing mountings to meet their specific needs. Tell us your problems and we will send other types of mountings, specifications and complete information.



TRIANGLE MANUFACTURING CO.
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IN THE WEST IT'S WESCO

SINCE 1922 A DEPENDABLE NAME IN HOME HEATING

The New WESCO 450 ALL PURPOSE Forced Air FURNACE



Converts to Burn Any Type of Fuel with Top Efficiency

Today that is a BIG selling point with the home owner who is concerned with uncertain fuel supplies in the near future.

Why not write us today for literature and specification sheets on the Wesco 450 and other heating equipment in the Wesco line together with attractive dealer-distributor proposition.

Complete line of Wesco Heating Equipment from 80,000 to 800,000 BTU capacity.



NORTHWEST FOUNDRY & FURNACE CO.
2345 S.E. Gladstone St. Portland 2, Ore.

No Rust-No Corrosion No Painting

with Plastipitch* Protected Metal



SHEET Metal Contractors sing the praises of Plastipitch Protected Metal for industrial, railroad and farm buildings.

For roofing and siding, Koppers takes preformed commercial-quality steel sheets —corrugated, crimped and flat—and coats them on both sides with Plastipitch. This tough, corrosion-resistant Pitch Compound adheres tenaciously to metal no matter how high or low the atmospheric temperature may go. So you have all the advantages of steel—plus long-lasting protection against rust, corrosion, salt air, weather and corrosive industrial atmospheres.

Koppers Plastipitch Protected Metal is priced right; it's easy to sell . . . easy to erect. And it's easy to obtain, because warehouse stocks are available from Approved Distributors in major trading areas. Write to Koppers — or to the nearest District Office shown below—for our Engineering Manual on Plastipitch Protected Metal.

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PROTECTED METAL

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Research in Gas Venting—

(From page 83)

TABLE 9

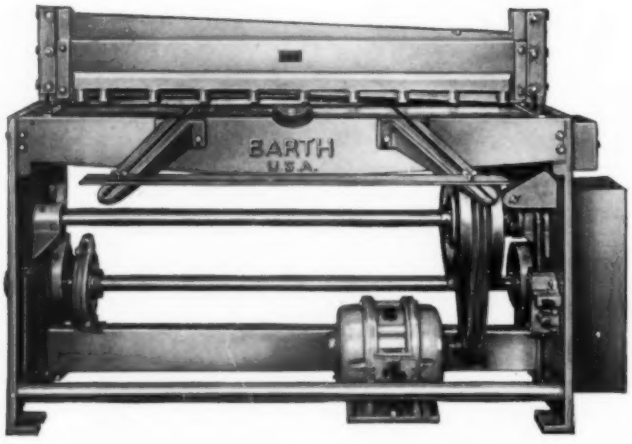
CUMULATIVE REPORT

	Area #1	Area #2	Area #3	Area #4	Area #5	Area #6 (North)	Area #6 (South)	Totals
Total applicable inspection reports	26	62	7	48	6	18	19	186
Reports with satisfactory vents	7	19	4	18	1	11	9	69
Reports with unsatisfactory vents	19	43	3	30	5	7	10	117
Total influencing factors recorded	32	74	8	60	9	22	28	233
Satisfactory vents	7	19	4	18	1	11	9	69
Factors involved in unsatisfactory vents	25	55	4	42	8	11	19	164
Excessive thermal losses from vents and flues	9	19	1	14	2	1	6	52
Exterior wind pressures	3	11	1	17	2	4	3	41
Frictional resistances	5	6	1	8	4	4	5	33
Negative interior pressures	3	14	0	1	0	1	0	19
Insufficient flue capacity	2	1	1	1	0	1	3	9
Unvented appliances	2	2	0	1	0	0	2	7
Broken vents or flues	1	2	0	0	0	0	0	3
Totals	25	55	4	42	8	11	19	164

TABLE 10

TABLE OF WIND PRESSURES AT VARIOUS VELOCITIES AND TEMPERATURES
(All Pressures Shown in Inches of Water)
Bar. 29.92 in. Hg.

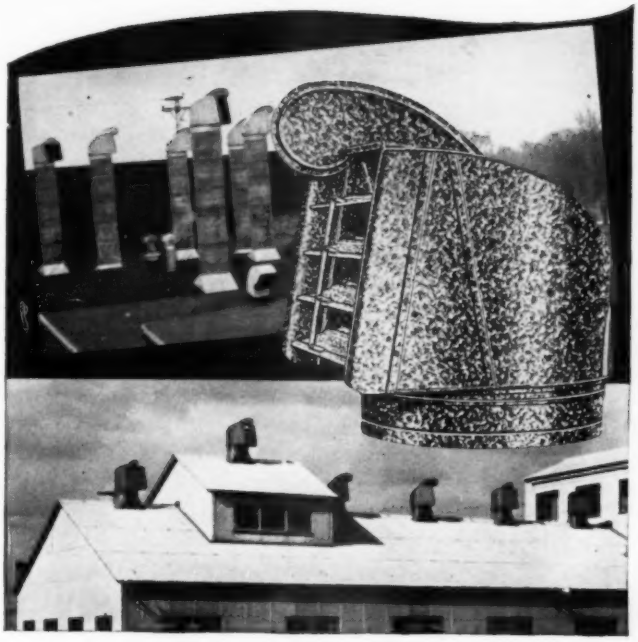
M.P.H.	*59°F*	*32°F*	*0°F*
1	0.000490	0.000517	0.000553
2	0.00196	0.00207	0.00221
3	0.00441	0.00466	0.00498
4	0.00785	0.00828	0.00886
5	0.0123	0.0129	0.0138
10	0.0490	0.0517	0.0553
15	0.110	0.116	0.124
20	0.196	0.207	0.221
25	0.306	0.323	0.346
30	0.441	0.466	0.498
35	0.601	0.634	0.678
40	0.785	0.828	0.886
45	0.993	1.048	1.121
50	1.226	1.294	1.384
75	2.770	2.992	3.125
100	4.890	5.158	5.517



BARTH Power Shears

Absolute finality in design and construction, these 14-gauge Power Shears represent long, careful study of the sheet metal fabricator's needs. Many outstanding features make these shears another progressive addition to the rapidly expanding BARTH line. Available in 52" and 72" sizes.

THE BARTH MANUFACTURING CO., Milldale, Conn.



The Rotary is a high quality ventilator which has been a favorite with industry and the trade for over 40 years. Its design permits unhampered air-flow and greatest capacity per size of roof opening. Swings away from the wind on stainless ball bearings. Can be installed on any type of roof with Swartwout matching bases. . . . Available also as powered unit . . . known as the Airjector.

Swartwout ROTARY

Build Customer Satisfaction with efficient, high quality

Swartwout

ROOF VENTILATORS



Swartwout AIRVALVE

Airvalve is an improved type round stationary ventilator providing economical exhaust of heat, smoke or fumes from buildings. Can be placed on flat, slope or peak roofs, or use as a stack cap. Completely weather-tight and wind-proof. Made in 14 sizes.

● *Write for descriptive folders of these ventilators, or ask for suggestions on specific ventilating problems.*

THE SWARTWOUT CO., 18615 Euclid Ave., Cleveland 12, Ohio

Swartwout *Controlled* **Air Circulation**

EQUIPMENT FOR EFFECTIVE ECONOMICAL VENTILATION OF INDUSTRIAL BUILDINGS

here's how

ZINC

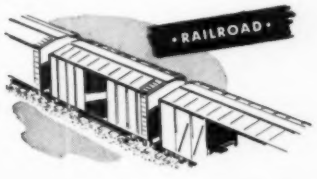
SERVES YOU

Galvanizing (Zinc coating) insures long-time, low-cost service . . . protects property . . . saves money. For as long as iron or steel is coated with Zinc, *it cannot rust!* For satisfaction, use galvanized materials . . . they're "Sealed-in-Zinc" against rust.



ZINC INSTITUTE 2 OZ. COATING SEAL OF QUALITY

TIME proves galvanized sheets stay stronger longer. Used as roofing and siding, they give buildings the "strength of steel" . . . the rust protection of Zinc. The "Seal of Quality" (above) is your guide to economy in buying galvanized sheets. It means they carry at least 2 oz. of Zinc per sq. ft. Galvanizing also lengthens fence life and service.



Galvanized products in railroad industry guard bridges, buildings, cars., etc., against rust.



Strength, workability and resistance to heat as well as rust, make galvanized sheets ideal for heating and air-conditioning.



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Send me without cost or obligation the illustrated booklets I have checked.

- ☐ Repair Manual on Galvanized Roofing and Siding
- ☐ Facts about Galvanized Sheets
- ☐ Use of Metallic Zinc Paint to Protect Metal Surfaces

Name_____

Address_____

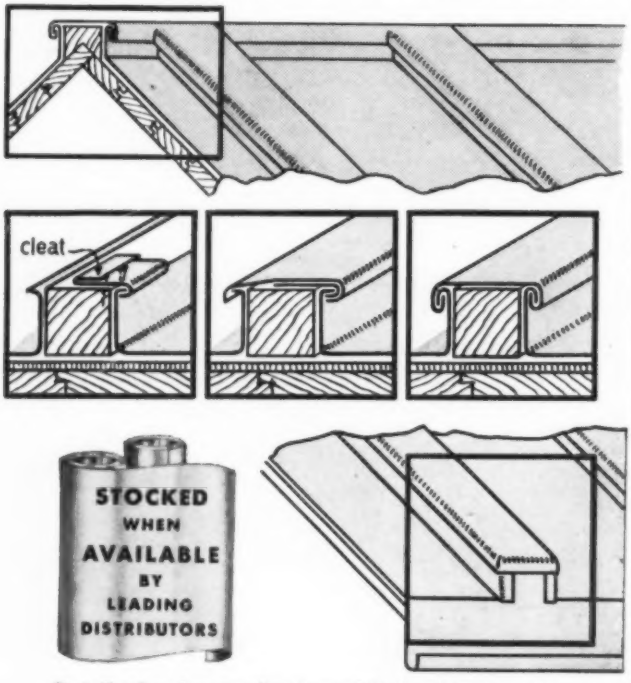
Town_____ State_____

eliminate cross-seams in batten roofs

using

FOLLANSBEE

20 LB. COATED SEAMLESS TERNE ROLL ROOFING



Details showing application of Follansbee Seamless Terne Roll Roofing to Ribbed Seam Roof.

Your next roof maintenance or repair contract is just the place to try Follansbee Seamless Terne Roll Roofing—just the way to find out how the elimination of cross-seam soldering speeds up installation.

You'll find out, too, that it's easy to handle Follansbee Seamless Terne Roll Roofing regardless of the roof design or seam specification.

It will pay to use Follansbee Seamless Terne Roll Roofing with its time-saving advantages.

FOLLANSBEE STEEL CORPORATION

GENERAL OFFICES • PITTSBURGH 30, PA.



Sales Offices—New York, Philadelphia, Rochester, Cleveland, Detroit, Milwaukee. *Sales Agents*—Chicago, Indianapolis, St. Louis, Kansas City, Nashville, Houston, Los Angeles, San Francisco, Seattle; Toronto and Montreal, Canada. *Plants*—Follansbee, W. Va. and Toronto, Ohio

FOLLANSBEE METAL WAREHOUSES: Pittsburgh, Pa., Rochester, N. Y., and Fairfield, Conn.

COLD ROLLED STRIP • POLISHED BLUE SHEETS • ELECTRICAL SHEETS

SEAMLESS TERNE ROLL ROOFING

Heating & Ventilating Exposition

INDUSTRIAL APPLICATIONS of heating, ventilating and air conditioning equipment are steadily expanding according to exhibits planned for the 9th International Heating and Ventilating Exposition. Sponsored by the American Society of Heating and Ventilating Engineers, it will be held at the International Amphitheater, Chicago, January 24 to 28.

Direct fired space heaters are being used to defrost the trucks of Diesel locomotives, temper makeup air in a plant which does much spray painting and heat and ventilate entire plants.

Air handling equipment has been given added versatility by adjustable pitch blades in the fans used and air purifying equipment will be shown by more manufacturers than ever before.

Roberts—

(From page 67)

less for some items, you increase your profit on paper and increase your tax liability. In a sense, you pay the tax before you earn the profit.

15.—Value inventory by the same method at the beginning and the end of the year. Be consistent from year to year. There are 6 different methods of valuing inventory. If you can get the consent of the Commissioner of Internal Revenue you may switch from one method to another, but the transition is not always an easy one, although it may seem so on the surface.

THREE GREAT NEW

MODERNAIRE OIL-FIRED

Winter Air-Conditioning Units

NOW READY FOR DELIVERY

also

Fittings • Registers • Sundries

REPAIR PARTS

for..Stoves • Furnaces • Boilers

YOUR COMPLETE HEATING NEEDS CAN BE FILLED BY BUYING AT—

DES MOINES STOVE REPAIR COMPANY

DES MOINES, IOWA

SINCE 1869

HOMER

FURNACE & FOUNDRY CORPORATION

MANUFACTURERS OF
FURNACE AND BOILER
REPAIR PARTS



Attractive prices to volume buyers PLUS free delivery by Homer's own fleet of fast trucks.



FOR CATALOG AND COMPLETE INFORMATION, WRITE, WIRE OR PHONE . . .

HOMER FURNACE & FOUNDRY CORP.
COLDWATER, MICHIGAN



AIR-FLO

AUTOMATIC
CEILING SHUTTER
FOR ATTIC FAN

Built so they can be installed practically flush with the ceiling, AIR-FLO Ceiling Shutters present a refined, finished appearance. Their natural aluminum color blends with any decoration, eliminating need for painting, and no grille or winter cover is required. Furnished in 5 different widths, single panel up to 73" long. No operating mechanism shows. Built-in fusible link. Meets fire underwriters requirements.

WRITE FOR NEW CATALOG 43-C

Illustrations and details of the complete AIR-FLO line.

AIR CONDITIONING PRODUCTS CO.
2340 W. LAFAYETTE BLVD. • DETROIT 16, MICH.

Add Extra Easy Profits with **CIRCULATAIRE**

***Forced Air Unit* for Gravity type warm air Furnaces**



Get your share of the BIG PROFITS in the huge market for this EFFICIENT, LOW PRICED forced air unit.

NO MATERIAL TO FURNISH, no new duct work—no change in existing furnace pipes—no baffles—no wiring.

Dealers report making installations in less than two hours.

Want Some Quick-Profit Information? Write TODAY—

"CIRCULATAIRE" Division of Corlett-Turner Co.
1001 S. Kostner Ave., Chicago 24, Ill.

Beverly
THROATLESS SHEAR



- UNIVERSAL . . . makes intricate, angular, radii and straight cuts with equal efficiency.
- Positive rake produces neat, clean edges free of burr.
- Free-cutting . . . handles lightest material without distortion.
- Compound leverage . . . great power with little effort.
- High grade tool steel blades adjustable for wear. Easily replaced.
- B-3 Model (illustrated) has ball-bearing hold down for easy control of heavier gauges. Beverly Shears also available with H.C. H.C. blades for handling Stainless.

See your Dealer . . . or write direct for information and illustrated Catalogs.

Made in 3 models to handle 14 gauge, 10 gauge and 1/4". Welded, all-steel stands available for Beverly Shears.

The BEVERLY SHEAR MFG. Co.
3020 W. 111th St.
Chicago 43, Ill.

SUBSTANTIAL PROFITS *for* YOU—
Cleaning Furnaces with the GRAND RAPIDS *De Luxe* FURNACE CLEANER





You can put furnace cleaning on a money making basis by using a Grand Rapids Furnace Cleaner. High velocity suction scoops up all deposits of soot, ashes and carbon, cleaning the heating plant and re-establishing full efficiency. Special attachments clean flues, radiators, right angle turns and other hard-to-reach areas. The job is done quickly and completely. Customers are highly satisfied.

The Grand Rapids DeLuxe Furnace Cleaner is also your "in" for more than cleaning profits. By checking over and inspecting the heating plant as you clean it you are in a position to make timely recommendations for new equipment or repairs. This means better service for customers . . . more profits for you.

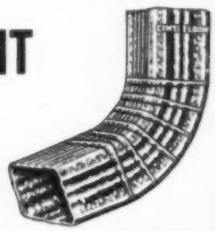
Write for complete information and prices today.

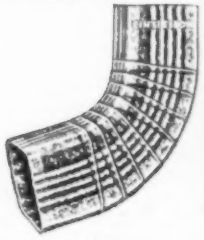
DOYLE VACUUM CLEANER CO.

227 Stevens St., S.W. Grand Rapids 7, Michigan

CINTI ELBOWS

. . . NEW EQUIPMENT *brings you* FINER ELBOWS





There's only one way to stay out in front in any field and that's to supply the *best available merchandise.* The Cincinnati Elbow Co. with its new automatic equipment has earned this reputation among aggressive sheet metal men.

Use Cinti Elbows on your next job . . . you'll find them easier to work with and hot-dipping after forming makes them more durable.

Ask Your Jobber for Them

The Cincinnati Elbow Co.
2627 Colerain Avenue
Cincinnati 14, Ohio

Sometimes it involves many adjustments, which may require intricate calculation. Then too, it pays to go thoroughly into the subject before making such a change. When all factors are considered, it may be unwise.

Of the various methods used to value inventory, cost or market, whichever is lower, is probably the most frequently used. Market value means replacement value. Some accountants debate the fairness of this method, contending that it is inconsistent, that it writes down inventories when the market is below cost and does not write them up when the market is above cost. But, conservative accounting demands that profits be not anticipated, that a loss has actually occurred if the inventory can be replaced at a lower value, hence, the current period should stand the loss. Recording the figures in a different way gets the same result in the long run, so use the simplest method suitable to your business and recognized as good accounting practice. "Cost or market, whichever is lower" is a method acceptable to the Internal Revenue Department and we believe that its use will give minimum trouble.

During a period of rising prices, cost is the inventory valuation; in a period of decreasing prices, market or current bid price for the merchandise prevailing at the date of the inventory. Cost is the invoice price, less trade or other discounts, plus incoming transportation and other charges incurred in acquiring the goods.

Too many *Indoor Comfort* dealers and sheet metal contractors go down for the count at inventory time. Whether you take inventory quarterly, semi-annually or annually, the suggestions given here will help take the jitters out of the job.

MOUNTING FUEL COSTS ARE CREATING MORE AND MORE STOKER CUSTOMERS FOR ME. I HAVE FOUND ECON-O-COL STOKERS MEAN FASTER SALES . . . FEWER SERVICE CALLS!

ECON-O-COL COAL BURNER
THE SHIELD OF QUALITY

ECON-O-COL
The "Stronghearted" Stoker
BUILT BY COTTA TRANSMISSION COMPANY • ROCKFORD, ILLINOIS



WRITE FOR DETAILS OF THIS COMPLETE LINE OF PRECISION-BUILT, HIGHEST-QUALITY STOKERS

THE FINISHING TOUCH..
Architecturally . . .
Functionally . . .
H & K GRILLES

Designed for
- *Air Conditioning*
- *Heating & Ventilating*
- *Radiator Enclosures, Etc.*

H & K Grilles make any architectural plan complete—supplying functional designs of enduring beauty. Large or small . . . commercial, residential, or public— there's a variety of patterns to suit every taste. They are safe as well, providing convenient access to hidden equipment or controls. Specify "Grilles by H & K" and you're sure of outstanding workmanship in a wide choice of designs and materials.

Write for literature

The Harrington & King Perforating Co.

5649 Fillmore St., Chicago 44, Ill. 114 Liberty St., New York 6, N. Y.

WHITNEY-JENSEN PRODUCTS
38 YEARS EXPERIENCE

NO. 20 BALL BEARING PUNCH



Capacity ½" thru ½"
Weight—18 lbs.

Punches and Dies
⅛" thru 11/16" x 1/32"
Variation

Nos. 129 - 130 - 231
POWER PUNCH PRESSES



Capacity—10 and 20 Tons
12", 18" and 24"
Throat Depths

Write for Catalog 16-48

WHITNEY METAL TOOL COMPANY
91 FORBES ST. • ROCKFORD, ILL.

PERFORMANCE PLUS!
ATH-A-NOR
Furnaces and Parts

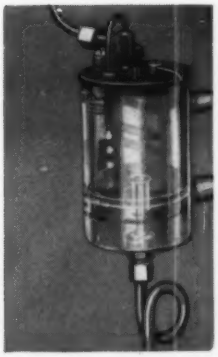
* * *

Performance is the yardstick for measuring the efficiency of any heating plant, and those that will operate year after year with little or no attention are the ones which will return you the most profit.

You're sure of top drawer performance when you install ATH-A-NOR Furnaces and parts exclusively. Over fifty years of furnace manufacturing experience guarantee you home heating plants with performance ratings and lasting qualities to satisfy the most critical clients. Investigate now . . . write for literature.

MAY-FIEBEGER COMPANY
Manufacturers of Quality Heating Equipment for Over Fifty Years.
Newark Ohio

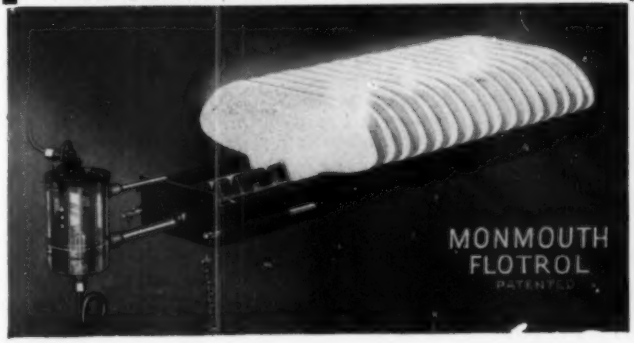
MONMOUTH HUMIDIFIERS

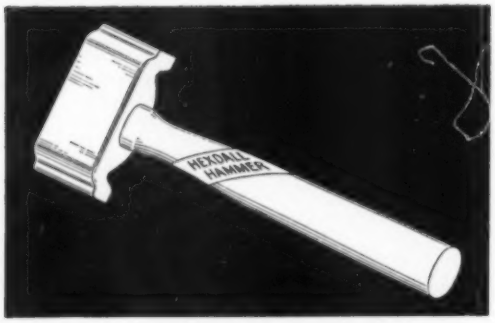


• For healthful heating, use a good humidifier on every heating installation you make. For long dependable performance, and freedom from repairs and adjustments, make it a Monmouth FLOTROL, or a MICRO-FEED, the best engineered and built humidifiers available. Get that easy EXTRA profit in every Monmouth sale. We also make gas operated HUMIDITY CONDITIONERS for all radiator jobs.

Bulletin and prices on request.

7802 Wade Park Ave., Cleveland 3, Ohio
THE CLEVELAND HUMIDIFIER CO.





New! HEXDALL HAMMER

(Patent Pending)



Especially designed for use on Pittsburg Locks, this strong, durable hammer will save hours of time, dollars in labor cost. Workers have told us it is the "world's best balanced hammer". Priced at $3.45 — you'd want it if it cost fifty dollars. Order from your jobber, or if your jobber has no supply, order direct from us.

A. M. HEXDALL CO., MORRIS, ILLINOIS

Manufacturers of Sheet Metal Specialties

Markstein—

(From page 70)

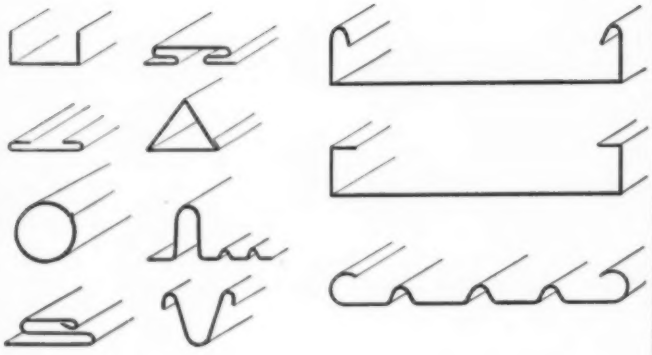
for employees, and result in more entries being received. Usually, forms have space for the idea, and for the employee's estimate of what it will accomplish. Space should be provided for the name if entries are to be signed; if not, key numbers must be printed on both top and stub. Most users have found that keeping a ready supply of suggestion forms results in more entries being received. A rack beside the drop box is ideal, and foremen may be supplied with forms for distribution to their subordinates.

Speedy treatment is given to checking the practicability of the suggestions. As soon as they are received, the secretary of this company routes them to department heads and foremen for comments.

Another regular form is used to expedite this operation. Attached to the suggestion form, it provides space for the department head's comments and proposals, and contains sufficient space for two or three supervisors to express their views of the entry. The comment form is printed on orange stock and stamped "Urgent," so that it stands out like a pay envelope on the supervisor's desk. Final compilation of what was done about the suggestion is usually kept in a permanent file. This indicates the suggestion itself, the employee entering it, the action taken, reward given the worker, and even the reasons for rejection if any.

Once ideas have been received, passed upon, and approved, they should be put into practice as quickly as possible. Seeing fast action taken on their coworkers' suggestions, other employees are encouraged

ROLL FORMING MACHINES AND ROLLER DIES



Also Pittsburgh Lock Machines, Pipe and Elbow, Beading, Turning Machines and all other Sheet Metal Working Machinery. Your inquiries invited.

MAPLEWOOD MACHINERY CO.

2634 FULLERTON AVE. CHICAGO 47, ILLINOIS

SEQUOIA FURNACE

New "Slim" Design requires LESS FLOOR SPACE THAN EVER BEFORE!



Here's the handsome, newly-designed SEQUOIA WINTER AIR CONDITIONER—built in every detail to *move fast* from your sales floor! Outstanding among *many* valuable features: new *extra-slim* lines—width, 20", depth, 30" (70,000 BTU)—that let it slip easily into the smallest of spaces in basement, kitchen, utility room, or closet! SEQUOIA's compact, attractive lines are designed for the *modern* home—but its efficient, year-'round *service* is meant for *any* home where people are interested in clean, healthful, tempered air *automatically* delivered to any part of their house.

SEQUOIA is A.G.A. approved for natural, manufactured, and liquefied petroleum gas . . . for both high and low altitudes. It has no traps or baffles. *And* SEQUOIA's operation is always *smooth . . . quiet.*

YOU CAN PROFIT with SEQUOIA on your floor! Ask now for full information on this most modern of furnaces—then *judge for yourself!*

Series "UM"
Gas Fired

Inquire of Your Jobber, Or Write—

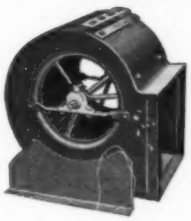
SEQUOIA MANUFACTURING COMPANY

1000 Brittan Ave. San Carlos, Calif.

• BLOWERS •

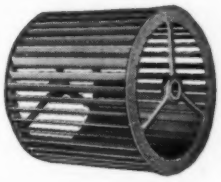
for

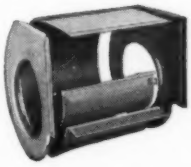
Air Conditioning Furnace Manufacturers



The *New* Bishop & Babcock Air Conditioning Blower Assembly Type "AC"—Design 2

The *New* Bishop & Babcock Blower Wheel For Air Conditioning Furnace Blowers





The *New* Bishop & Babcock All Stamped Housing Assembly and Component Parts

Write for Bulletin No. 115

MASSACHUSETTS BLOWER DIVISION

The BISHOP & BABCOCK Mfg. Co.

4901 HAMILTON AVENUE · CLEVELAND 14, OHIO

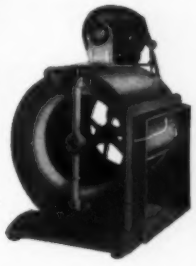
An Easy Oiling



REX BLOWER

Means More Business . . .

. . . and more than that, too! It means *steady* business. Once a prospect sees REX Air-Pak Blower Filter Units . . . he becomes a customer! And this long lasting, easy filling oil tube feed is only the beginning. There's the self-aligning bearing, adjustable cutoff, outlet stiffener frame, and many other advantages. Write now for complete catalog information.



Air CONTROLS INC

DIV. OF
THE CLEVELAND HEATER CO.

2310 SUPERIOR AVE. • CLEVELAND 14, OHIO



Steel Furnaces
Cast Iron Furnaces
Winter Air Conditioners
Oil Burners
Humidifiers
Blowers

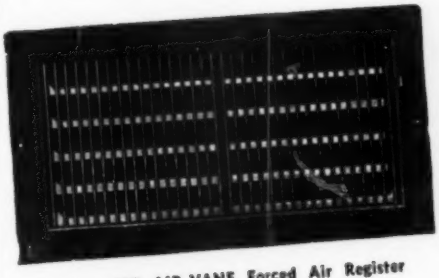
Good heating men *love* PREMIER Steel Furnace bodies, because they are made to do a good honest heating job, with never a leaky seam. PREMIER believes in giving its dealers top quality, to sell at competitive prices. PREMIER also backs up its dealers with a valuable 9-Point Program of sales, advertising, and engineering cooperation. That's why the PREMIER Dealer Franchise is such a big asset. Better inquire about it today.

PREMIER FURNACE COMPANY

DOWAGIAC, MICHIGAN

•

AIR-VANE FORCED AIR REGISTERS



Made By ROCK ISLAND . . . You Know They're Good!

No. 802 AIR-VANE Forced Air Register

Quality of equipment is essential to the performance and life of any modern forced warm air heating installation. You'll find that Rock Island's AIR-VANE Line will fill the bill for you on the most exacting jobs. They're constructed with vertical or horizontal vanes for right or left or downward deflection of air flow. Multi louvre dampers for closing and 15 degrees downward directional air flow are standard. This versatile model is also available with single louvre in wall or baseboard registers.

Check the complete Rock Island line . . . if it's a Rock Island Register you KNOW it's good.

ROCK ISLAND REGISTER CO.

ROCK ISLAND, ILL.

2435 FIFTH AVENUE

ANOTHER HOLLY FIRST!

NEW HOLLY "25"



SINGLE WALL HEATER—25,000 BTU

MEASURE IT . . . It's miniature size is truly amazing! Rough-in dimensions only 14"x50½" in standard 4" wall. No studs to cut.

TEST IT . . . This circulating heater is rated at a full 25,000 BTU input by A.G.A. —meeting a higher efficiency standard than required for heaters of 20,000 BTU capacity. Automatic 100% shut-off safety valve is standard.

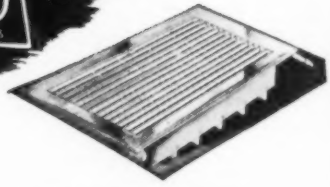
STUDY IT . . . It's beautifully designed. Exclusive "Clearflo" grille directs warm air into room —not up the wall. Panel always safely cool. Return air taken from floor.

COMPARE IT . . . For "looks" —for efficiency—for safety—for convenience and for its B-I-G saving in installation expense.

HOLLY MANUFACTURING CO.
847 South Arroyo Parkway, Pasadena 2, California

Stubby Duals · Stubby Flats · Single Wall Heaters · Dual Wall Heaters

NEW STANDFORATED
PERFORATION OF ALL METALS

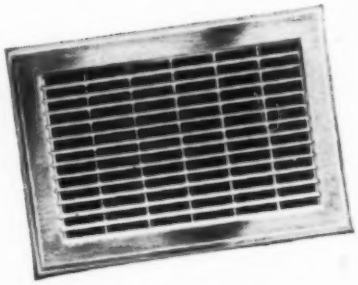


EFFICIENT!

newest -
finest -
strongest

beveled edges
fabricated metal
more free air space
solid construction
no loose parts
ultra-strong baked on oak finish, longer wear, matches flooring. Made in all standard sizes

Floor Registers



Cold Air Faces

- FORCED AIR REGISTERS—Prompt Delivery Standard Sizes
- MIRRO-GLO LINE Bathroom Medicine Cabinets
- PERFORATED METALS FOR EVERY INDUSTRIAL USE

Write for complete information and price lists

STANDARD STAMPING & PERFORATING CO.
3137 W. 49th PLACE · CHICAGO, ILLINOIS

to enter their ideas; and if it's a good money or time-saving idea, the quicker it goes into operation, the more good it can do.

For employees' ideas can do good. The best suggestions, for doing routine things more efficiently, big companies have discovered, often originate at the bottom. Harnessing workers' ideas to work for the top management is smart business.

Zideck—

(From page 98)

trucks were used, moving materials and parts on their return from the store room G, carrying the products through the galvanizing room I-J, and bringing them to 10 for final touches and, in succession, to the store room, G.

It will be observed in the drawing that the operational stages commence at the materials H with blanking, grouped as at 3; and proceed in line to 4, preparing; to 5, forming; to 6, fitting; to 7, seaming-riveting; and 8-9, conditioning for treatment in the room I-J. Inspection is at both ends of galvanizing treatment, and the completed product at 10 is delivered to storage. It will be noted that, the obstruction A-B-C notwithstanding, the actual production is separated from the product-conveying; and that the one does not interfere, nor is affected, by the other. This shop arrangement may apply to a variety of similar products which it is necessary to produce in old, inadequate buildings.

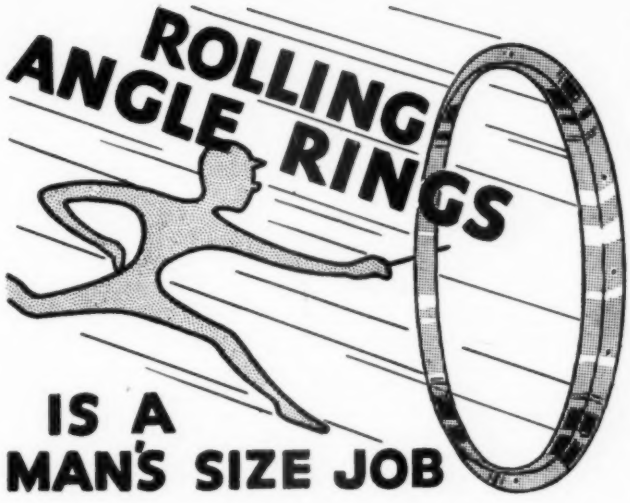
MILTON EQUIPMENT CO.
402 RACE STREET, PHILADELPHIA 6, WA 2-1734

We specialize in new and used sheet metal working tools and machinery

Manufacturers of:
Milton Forming Rolls —
1" to 6" Dia.; 16" to 122" Length
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Factory Representatives for:
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Machinery
bought
sold
exchanged



IS A MAN'S SIZE JOB

OUR EXPERIENCED OPERATORS

know all the answers to your angle ring requirements. Rolled to your specification—accurate in dimension — uniform in curvature, guaranteed to fit the job.

We consider it a man's size job to roll the type of angle ring you want for your specific job. Saves you time and effort.

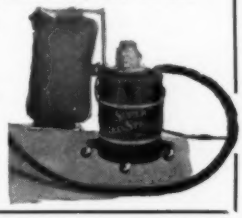
Write for our new circular illustrating our complete service.

NATIONAL METAL FABRICATORS
2136 S. Sawyer Ave. Chicago 23, Ill.

Give Yourself A Christmas Present, too

The Holidays won't be fun in any home where the furnace is dirty and won't heat properly. With a Super Red Streak Furnace Cleaner you can save your customers discomfort, inconvenience and expense. Insure them a pleasant Holiday Season with a clean, good-burning furnace.

Easy to operate, the Super cleans 'em hot or cold, chimneys, too, from the bottom up. Reveals need for repairs, avoids costly replacements, cuts down fuel bills, and makes you a nice profit. Try a Super for 5 days free. Keep what it makes as our Christmas Gift to you.



National Super Service Company, Inc.
1944 N. 13th Street, Toledo 2, Ohio

National Super Service Company of Canada
Toronto, Ont. Vancouver B. C.



ATTENTION — JOBBERS!

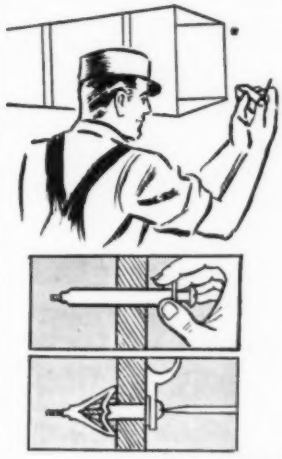
ELBOWS

2, 2½, 3, 4, 5 & 6 INCHES

SOLID WATER TYPE CONDUCTOR ELBOWS
45, 60, 75 & 90 DEGREES
IN 24, 26 & 28 GAUGE GALVANIZED STEEL AND 16 oz. COLD ROLLED COPPER

GEORGE T. GERHARDT CO., INC.
1030 GOLDEN GATE AVE. SAN FRANCISCO 15, CALIF.
WRITE FOR PRICES

A NEW and BETTER WAY TO FASTEN DUCTS and EQUIPMENT To Walls—The "ANY-WALL" ANCHOR



- Speeds Up Installations
- Easier, Simpler to Use

For hollow or solid walls, the "Any-Wall" Anchor goes in quickly, holds firm and solid on plaster, wood, metal, wallboard, tile, etc. Solves the need for a simple yet dependable fastener for all applications! Tubular steel anchor, length 2½", diameter 5/16". Draws up to dimension of any wall thickness.

1.) **Insert "Any-Wall" Anchor in wall.**
2.) **A few turns of speed tool draws up anchor quickly.**
3.) **Anchor ready to use.**

UNLIMITED USES! Saves you time and labor—when a wall fastening job is needed. Excellent for ductwork, iron strap, hooks, controls, cabinets, signs, etc.

SEND FOR THIS SPECIAL INTRODUCTORY KIT OFFER . . .

50 "Any-Wall" Anchors PLUS one $2.50 Speed Tool . . . Regular $5.75 Value
YOUR SPECIAL PRICE. . . . $4.95! Postage prepaid.

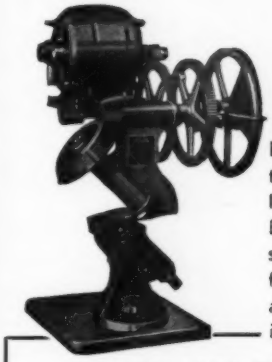
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Regardless of your cutting job the MARSHALLTOWN Throatless Shear does it QUICKER, EASIER and BETTER! Irregular shapes or straight splitting—from ANY width sheet. Available in hand-operated or motorized models!

CUTS ANY SHAPE OR SIZE
CAPACITY UP TO ¼" STOCK
CUTTING SPEED 6' PER MINUTE
PROMPT SHIPMENT

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No. 4B PUNCH



Length 8½ inches. Capacity ¼-inch through 16 gauge. Deep Throat — 2 inches. Weight—3 pounds. Punches and Dies—1/16" to 9/32" by 64ths.

No. 6 PUNCH



Length—26½ inches. Capacity — ¼-inch hole through 3/16-inch iron; especially adapted for button punching or templet work. Punches and dies ⅛" to 9/32" by 32nds.

No. 91 PUNCH

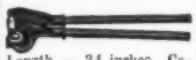


CAPACITY

½-inch hole through ¼-inch iron; ⅜-inch hole through 3/16-inch iron; 2-inch hole through ¼-inch iron. Depth throat, 5 inches. Weight, 82 lbs.

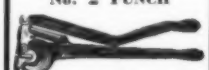
We have tools for every purpose needed by Sheet Metal Contractors.
Ask your Jobber

No. 1 PUNCH



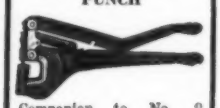
Length — 34 inches. Capacity — ⅜ - inch hole through ¼ - inch iron. Punches and dies in sizes from ⅛ to 9/16 by 64ths.

No. 2 PUNCH



Length — 23 inches. Capacity — 5/16-inch hole through ¼ - inch iron. Punches and dies in sizes 3/32" to ½-inch by 64ths.

CHANNEL IRON PUNCH



Companion to No. 2 Punch. Every part of the two punches Interchangeable, including punches and dies. Capacity—¼-inch hole through ¼-inch iron.

W. A. WHITNEY MFG. CO.
636 RACE ST. ROCKFORD, ILL.

Washington Letter—
Kruckman

(From page 63)

government understand what it needs and wants.

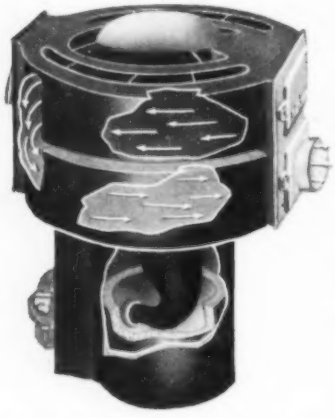
During its life, the Senate small business committee has held full-dress, and highly revealing investigations of the problems in connection with petroleum; steel; export licenses; newsprint; and government procurement which has been by-passing small business. These inquiries have been amazing in the conditions they unveiled. They have been amplified by many, many more inquiries into other phases of the activities which have paralyzed smaller business. The files of the Senate committee contain evidence of integration, concentration, consolidation, monopolization, which depressingly indicate the trend which is wiping out some categories of small business. A complete summary of the findings and conclusions of those who have done the work of the committee will be published at the end of the year, as the report of the director, addressed to the Senate small business committee, and will go to the Senate itself.

Meredith is in no sense a radical, not even a mild progressive of the incumbent Democrat type. He is simply a very intelligent business man with sincerity and courage. He is expected to calmly tell the facts as he and his associates found them. He apparently thinks they need airing because they have a bearing on the future of the republic. Like some others, he thinks the individualistic Americanism we call democ-

NO GUESSWORK HERE

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Check the inside first. REMEMBER A RADIATION FURNACE PAYS FOR ITSELF IN FUEL SAVINGS. RADIATION gives more real heating comfort for every dollar spent on fuel.



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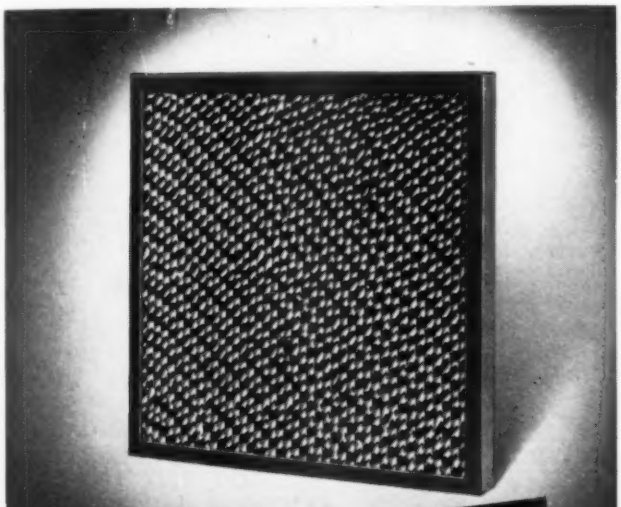
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The longer-lasting Filter with Wick-Action

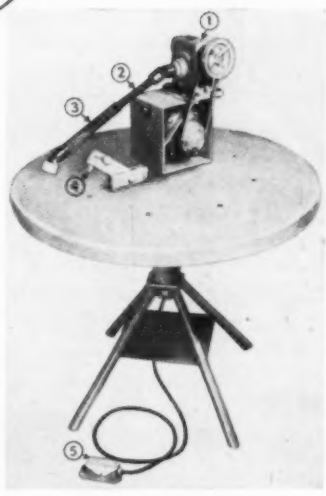
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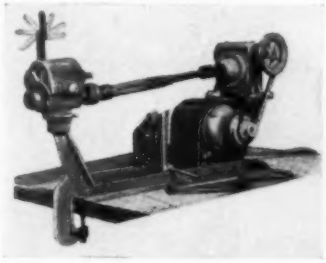
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All valves and controls are under cover—nothing shows in the basement but the neat, attractive casing.

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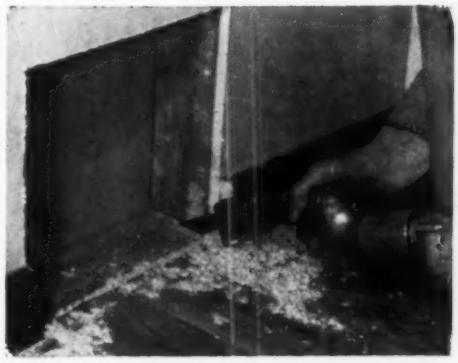
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The P. E. FLETCHER COMPANY of Nashua, N. H., writes as follows: "We ran a Warm Air Heating business for over 20 years without the saw—however, now that we have the saw, we can't get along 20 minutes without it." If TRI-SAW is not available at your local dealer, write us.

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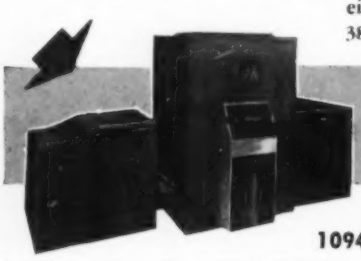
racy is that completely native thing we call small business, and which is often misnamed middle class. Meredith and his associates have the patriotic idea that you must preserve small business in its liberty and individualistic independence if you wish to preserve the economic structure of the United States. He does not insist that modifications are unnecessary; but he thinks we do not need modifications from which a totalitarianism will evolve.

There is little doubt in the minds of those who are interested in the fortunes of business that its needs, and the remedies for some of its ills, could be made very clear to the President if any one had the tenacity and devotion to get on the job to do it. Harry Truman is very human, and very sincere in his effort to help those whose troubles he understands. He unquestionably would get behind the effort to restore to small business some of the rights of which it has been deprived. Today these problems are to the President chiefly political equations. Congress would naturally get behind small business if it once completely realized that it is on the warpath, and if it grasped its needs. The legislative branch is about the only independent, unfettered part of government that remains responsive to a clearly-expressed public opinion.

To bring home to the White House and the Hill the needs of this part of our economy it is necessary to make them understand and recognize sharply and clearly that small business is different in its esssence from other business, and that its rights and needs are

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This smartly designed, rugged unit is tops in home-heating service, convenience, and economy. Special crown radial fins boost heat output. Inner can permits clean, easy clinker disposal. Any domestic stoker fits either side. It's a Majestic climax to 38 years' experience in heating.

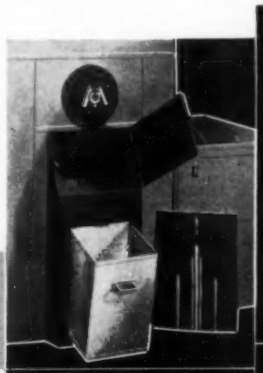


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For GRAVITY or FORCED AIR SYSTEMS

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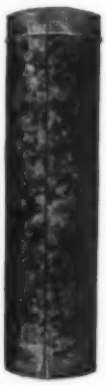
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DASCO
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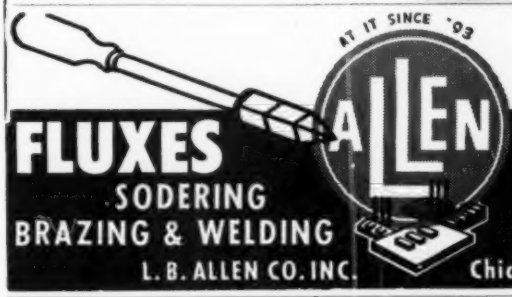
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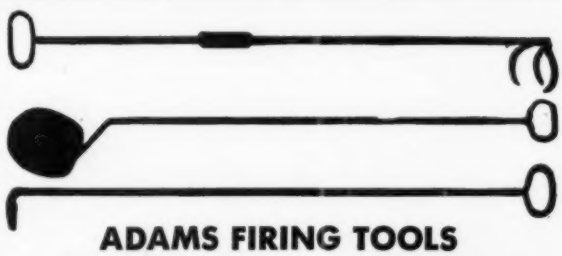
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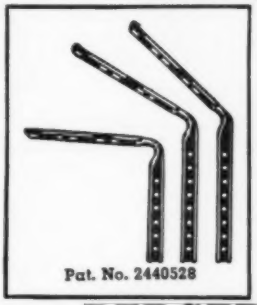
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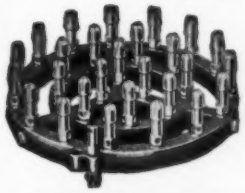
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No. 12 SHANK
33⅓% STRONGER

IMPROVEMENT IS APPLIED TO No. 15—SQUARE, No. 12—¼ PITCH, AND No. 25—⅓ PITCH.

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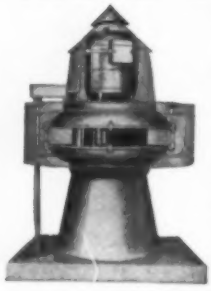
entirely different. The government must sense that it must be served differently. Someone, some how, must formulate a broad determination of the collective needs of small business, and must produce those facts and figures which will show that these needs can be satisfied through existing legislation, and existing administrative practices and machinery. The great need is to find chapter and verse of the existing law, and the places in the government departments and offices and agencies where the potentialities for the necessary service already exist, but are not applied.

The government includes many who might give vital service to the needs of small business under the leadership of practical people who are familiar with these urgent needs. There is necessity for simple, over-all, clarified definition of thought and objectives, with efficient and practical leadership.

In the immediate future, laws proposed for the benefit of small business will be presented for adoption by the 81st Congress. Probably these proposed laws will be nicely wrapped in gaudy and attractive coverings. But to make sure that the contents are everything the wrappings suggest, it is necessary that those who really know what is needed should look for the flaws. There appears to be a serious movement on foot to do something like this. There is a group representing the major elements in small business in all parts of the country which has concluded that if something is not done for their economic group now that it never can be done. They think this is the last chance.

No Noise Tendency...
WITH
E-Z-ON Damper Regulators
ORDER FROM YOUR JOBBER..

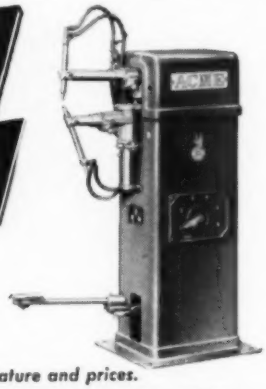
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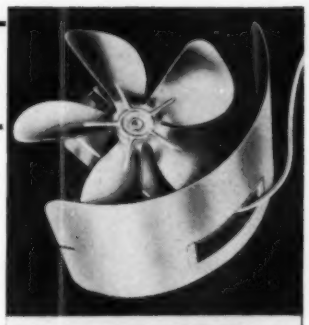
"EX" Fans are furnished in all standard arrangements of the N.A.F.M. The design is such that it can be easily modified to suit special assemblies, thus "EX" Fans are ideal for resale purposes, as part of factory assembled units.

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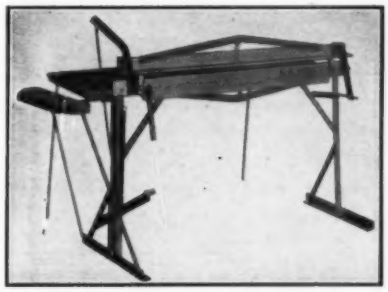
Don't install inferior equipment when the best is so easily available. When repairs become necessary for Vernois furnaces make them with original Vernois Repair Parts. You'll make sure of a sure fit every time.

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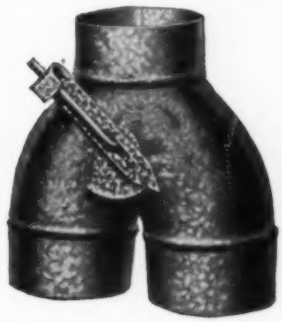
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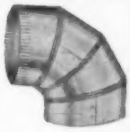
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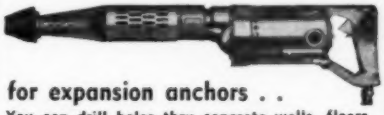
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